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THE EFFECTS OF ENVIRONMENTAL VARIABLES ON THE
ACHIEVEMENT OF ELEMENTARY SCHOOL
CHILDREN IN TRINIDAD

by

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A THESIS

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The undersigned certify that they have read and recommend to the Faculty of Graduate Studies for acceptance a thesis entitled "The Effects of Environmental Variables on the Achievement of Elementary School Children in Trinidad," submitted by Patrick Dyer in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

ABSTRACT

This study is concerned with the effects of the home environment on the achievement of pupils in Trinidad schools. Two hypotheses are examined: (1) the relationship between the measure of school achievement (Iowa Test of Basic Skills) and the Index of Educational Environment in the home (I.E.E.) will be greater than that between school achievement and the Index of Social Background (I.S.B.), and (2) there will be statistically significant differences in the independent contribution of measured intelligence (non-verbal and verbal), I.S.B., and I.E.E. to the prediction of school achievement.

Achievement scores, measures of verbal and non-verbal intelligence and measures of I.S.B. were obtained from 60 pupils randomly selected from the Standard IV classes of two schools in Trinidad, West Indies. The I.E.E. was obtained from interviews with the mothers of the pupils in the sample.

The data, analysed by school, confirmed the first hypothesis, but the test of the second was not as clear cut. The multiple correlation between achievement and the predictor variables is lowered significantly if the I.E.E. is excluded. In School T, the majority of whose pupils come from middle class backgrounds, the additional use of I.S.B. provides an even more accurate prediction, while in School P, whose pupils are mostly from a lower class background, the best combination is the I.E.E. and a measure of non-verbal intelligence.

These differences in the two schools are related to the findings from studies bearing on human characteristics.

This study, done in Trinidad, West Indies, confirms the finding of recent research that there is another important determinant of school success. It concludes that that determinant, the Index of Educational Environment in the home, or the measure of what parents do for and with their children, is more influential than measures of social background, than measured intelligence, in predicting school achievement.

The findings, which have implications for both theory and practice, suggest that the parent's efforts to enrich the educational environment in the home should work to the advantage of the child; that the teacher and administrator, making use of a knowledge of the home environment, should be in a better position to help the child in his academic progress.

The overall interpretation is that the home environment, of which the child is a part, can vitally affect his school progress and as such should be seriously considered by the parent as well as the teacher and administrator.

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CHAPTER I

THE PROBLEM

Many factors in the environment have been recognized as influential facets in the child's development. Recent research has been examining the effect of the home environment on the child's school performance. The present study seeks to examine the relationship of the Trinidad home environment to the school performance of elementary school pupils by looking at specific environmental variables in the home.

The effects of aspects of the environment on human performance has been documented. Specifically, it is accepted that a deprived environment will have a harmful effect and an enriched environment a helpful effect on the intellectual development of the child. However, researchers today are no longer thinking in terms of the effects of the environment as a whole on school achievement, but are concentrating on some of the specific elements in and of the environment which can effect the change.

These specific elements are referred to as environmental process variables. Among these variables are: Achievement press, Language models, Academic guidance, Activeness in the family, Intellectual interests in the home and Work habits emphasized in the home (Dave, 1963).

In the past, the shapers of educational opinion have not given full weight to the environment concept, partly because of the influence of Darwin's and Galton's work which sparked the heredity-environment controversy, and of the Spearman-Burt school of thought that intellectual ability is innate and not due to teaching and training (Hunt, 1961).

Researchers today are uncovering evidence that intelligence develops, that phases of development are not solely genetically determined, that much retardation can result from lack of early stimulation and that much advance in intellectual development can accrue from an interaction with an enriched environment.

The study was designed to determine the degree to which the above notions apply in Trinidad, a recently emerged nation, the southernmost in the West Indies. Trinidad and Tobago with an area of almost 2,000 square miles, carries a population of 828,000 (as of 1960 census) of which 236,527 are pupils in schools.*

In this project, the writer followed the argument of Dave (1963) and of Wolf (1963) of the University of Chicago. Dave, as did Wolf, started out with the notion that it is what the parents do rather than what they are that is important to and contributes most to the educational environment in the home. They surmised that there were certain "environmental process variables" within the home, that is, "specific groups of characteristics which relate to the academic achievement of

*Figures from Population Census, 1960.

the child and constitute the environment for the development of intelligence." They hypothesized that when the variables were found to be present, one would obtain a far higher correlation of these process variables with achievement and intelligence than one would obtain when socio-economic status variables were used. Dave got correlations of $+0.80$ with achievement using his Index of Educational Environment (I.E.E.) and Wolf $+0.69$ with intelligence.

If these findings can be replicated in work with Trinidadian children, and if the process variables can be controlled and manipulated, then considerable improvements in the educational performance of these pupils are likely to accrue.

CHAPTER II

THEORETICAL AND EMPIRICAL CONSIDERATIONS

Introduction

Much current research focuses on the effects of the child's home and social environment as the variables determining his school achievement (Dave, 1963; Wolf, 1963; Douglas, 1964; Vernon, 1965). It is not that the impact of heredity is discounted. As Douglas (1964) stated, educational psychologists "recognize that innate capacity may well be the most powerful (single) influence in determining the level of achievement at school," but they realize too that "there is evidence that extreme poverty of the environment leads to a progressive deterioration in academic ability" (p. 31). More importantly, educators and psychologists now argue that something can be done to moderate the effects of an unfavorable environment. Recognition of the desirability and possibility of improving the child's environment, however, was not always so evident. Since Galton's pioneer study of the relative influence of heredity and environment in the development of twins, many psychologists have felt that a more precise determination of the proportionate impact was a necessary prerequisite if educational planning was to rest on more than intuition (Thorndike, 1905; Shuttleworth, 1935; and Woodworth, 1941). Implicit in the early mental measurement movement was the assumption that

educational attainment was importantly constrained by genetically determined factors. One result of this assumption in education was the "readiness" movement which, starting from the premise that specific abilities must exist as a precondition for specific learnings, often led in practice to the self-fulfilling hypothesis that some children could not be taught, and, to a withdrawal of effort to help them learn.

For many years, much of the controversy over heredity and environment was of a polemical nature resting more on the social and philosophical commitments of the participants than on warranted evidence. It was considered important to choose sides on the issue.

There is not as much consensus among current workers as is reflected in Bonner's (1961) statement: "Today we are far less sure of the extent of hereditary and environmental factors and are more patient in waiting for tangible evidence. Some abilities are no doubt functions of the combined operation of both heredity and environment, many are products of cultural influence (p. 143)." It may be of interest then to look more closely at the development of this point of view over the years.

Effects of heredity on achievement

Few environmentalists will be unwilling to concede that heredity is a major contributor to achievement. Controversy arises, however, when hereditarians claim that heredity is the only contributing factor. The child with high measured intelligence, by inference, the greatest

endowment, does well at school and at other tasks assigned to him. Binet's intelligence tests were devised precisely on the basis of their power to differentiate on common school-related tasks (Binet, 1916). Correlations between intelligence tests and teacher's ratings are high. Children below a certain level of intelligence test scores tend to be retarded in their school work (Terman, 1916), while children with high intelligence are high achievers (Terman, 1925). The fact that selections for various institutions, for scholarships and other academic pursuits are made on the basis of intelligence tests (Parkyn, 1959) suggests that the assumption of heredity's prime contribution to school achievement still carries much weight today.

As early as 1923, Terman initiated and chaired a committee of the National Society for the Study of Education to look into the relative effects of heredity and environment on educability. Two significant studies resulted. Their conclusions came out heavily in favour of heredity. Hollingworth and Cobb (1928) studied two groups of children of intelligence quotients averaging 164 and 145 respectively. "They hypothesized that if home and school conditions were held constant for these groups, they would not differ from each other unless intellect, as measured, is the chief determiner of such a difference" (p. 5). They found that despite equalization of opportunity, children of very superior intelligence scored higher on achievement tests than those with superior intelligence. They interpreted this finding to

mean that intelligence, hence heredity, is the most important factor in achievement.

The second study, that by Heilman (1928), had as its purpose the determination of "the relative influence upon scholastic achievement of mental age, school attendance and socio-economic status of the home with the hope of throwing some light upon the relative weight of inborn capacity and environmental influences in determining the large individual differences in acquired ability" (p. 35). He found that less than 13 percent of the variation in Educational Age* was due to school training, 1 percent to socio-economic status and almost 70 percent of the variation was due to hereditary factors. He concluded that "intellectual endowment has by far the most powerful influence in determining differences in achievement" (p. 64).

Effects of environment on achievement

The staunch hereditarian insists that "we cannot make a silk purse out of a sow's ears" (Garrett, 1955, p. 495). He says, in other words, that the child will achieve only according as his innate capacity allows him. The environmentalist, on the other hand, says that we may not be able to make a silk purse, but that we should be able to make a better purse. Put in the suitable environment, the child is capable of performing beyond all expectations. Implicit in this point

*A pupil's average accomplishment in school subjects measured in terms of the average for a given chronological age (English and English).

of view is the educator's faith in the power of training to compensate for lower levels of innate ability.

In an attempt to determine the effects of environment on achievement, many researchers have used identical twins reared in the same and in different environments. Their assumption is that since identical twins are endowed with like hereditary traits, any differences in achievement of twins reared in different environments should be due to the environmental conditions.

The evidence from a number of such studies of twins, both identical and non-identical, reared together and reared apart supports the contention that "the environment has a powerful effect on the educational achievement of children" (Bloom, 1964, p. 118). Differences as high as .40 have been recorded in achievement test correlations with intelligence from tests on identical twins reared together and twins reared apart and about .30 for siblings.

Bloom's (1964) summary of twin studies is reported below. He comes to the conclusion that since children of similar hereditary make-up perform similarly under similar environmental conditions and differentially under dissimilar conditions, the difference must be due to environment. Anastasi (1958) makes essentially the same point in her compilation of environmental and achievement differences reported for identical twins reared apart.

TABLE 2.1

SUMMARY OF THE FINDINGS OF SEVERAL STUDIES ON THE CORRELATIONS BETWEEN THE SCHOLASTIC ACHIEVEMENT OF TWINS, SIBLINGS, AND UNRELATED CHILDREN REARED TOGETHER AND REARED APART (Bloom, 1964, p.117)

	General Achievement		Reading and Spelling		Reading	Arithmetic	
	Burt (1955)	Newman, Freeman, Holzinger (1937)	Burt (1955)	Husen (1959)	Wictorin* (1962)	Burt (1955)	Husen (1955) Wictorin* (1962)
Identical Twins							
Reared together	.90	.96	.94	.89	.95	.86	.87 .83
Reared apart	.68	.51	.65			.72	
Nonidentical Twins							
Reared together	.83	.88	.92	.62	.57	.75	.52 .83
Siblings							
Reared together	.81		.85			.77	
Reared apart	.53		.49			.56	
Unrelated children							
Reared together	.54		.55			.48	

*Based on teachers' marks at Grades 2, 4 and 6. All the other correlations are based on achievement test scores.

Studies using socio-economic status as the independent variable also have argued for the important effect of environment on achievement. Curry (1962) in the United States and Manley (1959) in the West Indies found that social and economic conditions have a great effect on scholastic achievement. Curry used children of comparable intellectual ability and looked at the school performance for those who measured high or low on his socio-economic scale. He concluded that the effect of social and economic variables was greater for those with the lowest level of intellectual ability. Manley examined the school performance of Jamaican children in terms of a number of variables, among them social class. Important differences were found between different social classes. He concluded that "the results indicate that children drawn from certain social classes show a decided superiority...over other groups" (p. 65). Hill and Giammetteo (1963) arrived at related findings in their investigation of the relationship of socio-economic status and vocabulary, reading comprehension, arithmetic skills and problem solving.

The effects on achievement of deprivation and stimulation in the environment have been documented in studies using identical twins reared apart, children in institutions and in experimental studies with animals. Studies by Dennis and Najarian (1957) and Kirk (1958) with children in institutions, by Wheeler (1942) with isolated mountain children, by Sontag et al (1958) with low need achievement and high

need achievement children, all support the thesis that a deprived environment will have a depressing effect and an abundant environment an enhancing effect on the child's achievement in school.

Experimental studies done with animals also make a point. Hebb (1937) working with rats, Thompson and Melzack (1956) with dogs, Cruze (1935) with chickens, Riesen (1947) with chimpanzees, Riesen, Kurke and Mellinger (1953) with cats, Siegel (1953) with pigeons and Krech and associates (1965) with the Norway rat, all support the theory that the amount of stimulation present in the environment markedly affects mental activity and development. More directly, Kirk (1958) in his much quoted study, attempted to evaluate the effects of special programmes of nursery school experiences on the mental development of feeble-minded children. He studied 81 retarded children between ages 3 and 6 with I.Q.'s between 45 and 80. His experimental group of 43 who were given enrichment training showed increases in I.Q. from 10 to 30 points. This positive effect of stimulation on measured intelligence is also evident in Lee's (1951) studies with Negro children who were born in the South and moved, at about age 6, to Philadelphia and a richer environment. Alexander's (1961) study of reading comprehension at Grades 2 to 8 gave comparable evidence for achievement. Correlations between reading comprehension at Grade 2 and at Grade 8 and father's occupation was $+0.79$.

The interaction between hereditary and environmental effects

The studies done in the early part of this century by hereditarians and environmentalists have produced findings to support both positions. The controversy has not been settled one way or another. But psychologists today no longer think in terms of an either-or position, rather, they point to an interaction between heredity and environment. Most agree that both factors contribute in accounting for the differences in the behavior of the individual. Stoddard's summary (1939) anticipated this trend and may have set the stage for the present resolution of the heredity-environment controversy. "It is essential," he says, "to think of the contributions of heredity and environment, not as mutually exclusive or diametrically opposed but rather as close-coupled factors whose impingement is mutually interacting" (p. 22).

Hunt (1961) has made a more recent statement of the interaction theory, focusing as he does on "the role of experience in the development of intelligence," without denying an important role to the genes. Hebb (1949) in his conception of intelligence as being divided into an intelligence A and intelligence B, also supports the interaction hypothesis. Intelligence A represents "the innate potential, the capacity for development," (p. 294) while intelligence B, is the all-round ability exhibited by adults in their everyday life and by children both in and out of school. Intelligence B exemplifies the

interaction between innate potential and the environment. As Hebb (1949), sums it up:

There are, then, two determinants of intellectual growth: a completely necessary innate potential and a completely necessary stimulating environment. It is not the point to ask which is more important; hypothetically, we might suppose that intelligence will rise to the limit set by heredity or environment, the inherited constitution will set the pace; given the heredity of a genius, the environment will do so (p. 303).

The present writer takes the view that heredity and environment both contribute to intellectual development and school achievement. The argument put forward here is that what is now important is finding ways of improving the environment seeing that the heredity portion of the dual contributors is a past issue after the child is born. This improvement can result from concentration on what may be called environmental process variables (E.P.V.).

Effects of environmental process variables on achievement

Most of the studies done in 1940 and 1950 dealing with the effects of environment on achievement were set in the general framework of a total environment. This total environment can be defined as the totality of influences affecting the individual. It would comprise:

- a. the world of people and things with which the individual interacts;
- b. the world of ideas and thoughts controlling the individual, and
- c. the physical, social and psychological stimuli impinging on the individual.

Researchers realized, however, that the total environment was too gross a variable and that some specifics within it needed to be identified and studied. As Bloom (1964) noted in referring to Kahl's study (1953), "...just as a general index of intelligence or I.Q. has obscured many of the very important differences among individuals, so the general index of social or economic status has obscured many very important differences among environments" (p. 186).

In order to determine the variables contributing most to school achievement, many studies done in the late 1950s and 1960s have concentrated on specific elements in the home environment. These elements, defined in terms of processes and forces in the home (e.g. achievement press), are referred to as Environmental Process Variables. They operate cognitively in the areas of perception, language, communication, among others, and can be said to direct and determine behaviour. Bloom (1964) puts it this way:

By environment, we mean the conditions, forces, and external stimuli which impinge upon the individual. These may be physical, social as well as intellectual forces and conditions. We conceive of a range of environments from the most immediate social interactions to the more remote cultural and institutional forces. We regard the environment as providing a network of forces and factors which surround, engulf, and play on the individual. Although some individuals may resist this network, it will only be the extreme and rare individuals who can completely avoid or escape from these forces. The environment is a shaping and reinforcing force which acts on the individual (p. 187).

Evidence from developmental psychology supports Bloom's statement and shows the home environment as the greatest and earliest of

these "shaping and reinforcing" forces in the life of the child.

In the key area of speech, Luria's work (1961) shows how speech which is primarily cultivated in the home can modify perception, inhibit impulsive action and direct behaviour. Bruner's (1964) and Piaget's (1961) stages of development also show how this "shaping" by the home environment takes place in the cognitive areas.

Apart from the areas of language and communication, there is evidence to show that what the parents do and how they do these things, the material possessions in the home and how these are used can have great influence in the shaping process.

Bandura and Walters (1963), discussing studies dealing with the influence of parents on the behaviour of their children come to the conclusion that "parental modeling may influence not only the standards that govern achievement behaviour but also the direction that achievement-striving takes" (p. 175). McClelland (1953) and associates in their "need achievement" research support the hypothesis that "achievement motives develop in cultures and in families where there is an emphasis on the independent development of the individual" (p. 328). Stendler (1950) found close relationship for Grade I children between achievement and parental aspiration, preparation for school and parental attitude to education. Reymont and Hinton (1940) concluded that for factors to be effective in shaping the child, they must be provided early in life. Kahl (1953) looked at the effects of the home in terms of the educational ambitions of the parent and how they affected the

child, this time, the lower class child. He concluded that:

...parents who believed in the value of "getting ahead" started to apply pressure from the beginning of the school career. They encouraged high marks, they paid attention to what was happening at school, they stressed that good performance was necessary for occupational success, they suggested various occupations that would be good for their sons. Their boys reached high school with a markedly different outlook from those who were not pushed (p.201).

Fraser (1959) in Aberdeen, Scotland, identified such E.P.V. as parents' education, reading habits of parents and children, income, occupation of the father, family size, living space, parents' attitude to the education and future employment of the child, parental encouragement, abnormal home background and a general impression of the home background. She found significant correlations between intelligence, achievement and all these variables. The correlation of a summation score for these variables with intelligence was +.69 and +.75 with achievement.

In a report of a continuing longitudinal study of 5,000 children in Scotland and Wales, Douglas (1964) studied the following variables: parents' interest, parental encouragement and the educational ambition of the parents for the child, the standard of housing and amenities, the education of the parents, views of the mother on education and size of the family. His overall finding echoes the result of other studies that "extreme poverty of the environment leads to a progressive deterioration in academic ability" (p. 31).

The studies by Fraser and Douglas can be seen as a link between

the traditional method of measuring the home environment by means of the general status characteristics and the more recent process characteristics approach. In both studies, there is evident a combination of status characteristics such as income and occupation of the father, and process characteristics such as parental encouragement and ambition of the parents for the child. Results based on the use of such measures are confounded and a clear interpretation made difficult.

Dave (1963), in his study of Chicago children, used process characteristics exclusively to measure the home environment. He isolated such variables as achievement press, language models, academic guidance, activeness of the family, intellectuality in the home, and work habits in the family. Having drawn a random sample of 60 cases containing urban, suburban and rural elements, he proceeded to collect data for his study. I.Q. scores obtained on the Henmon-Nelson Tests of Mental Ability, Achievement Test scores from the Metropolitan Achievement Battery, also a measure of socio-economic status (S.E.S.) were collected for each child in the sample.

Each of the process variables above was scored on a rating scale on the basis of a 63 question focused interview with the mother of each child in the sample. An Index of Educational Environment (I.E.E.) was then obtained by means of a simple addition of the scores on the process variables.

On the basis of his analyses, Dave found an overall correlation of +.80 when he related the I.E.E. with school achievement. For his sample, the I.E.E. accounted for approximately 64% of the variance of the total achievement scores, and when combined with I.Q. it explained more than 75% of the variance.

The present study was designed to replicate Dave's study in Trinidad in the West Indies. Five of his process variables were selected for study in addition to one from Vernon (1965). The list of process variables and their characteristics is set out below:

Variables and their Characteristics*:

1. Achievement Press

- (a) Parental aspiration for the education of the child
- (b) Parents' interest in academic achievement
- (c) Knowledge of the educational progress of the child
- (d) Preparation and planning for the attainment of educational goals

2. Language Models

- (a) Quality of the language usage of the parents
- (b) Opportunities for the enlargement and use of vocabulary and sentence patterns
- (c) Keenness of the parents for correct and effective language usage

*The terms characteristics and indicators are used interchangeably in the dissertation.

3. Academic Guidance

- (a) Availability of guidance on matters relating to school work
- (b) Availability and use of materials and facilities related to school learning

4. Activeness of the Family

- (a) The extent and content of the indoor activities of the family
- (b) The extent and content of the outdoor activities during weekends and vacations

5. Intellectuality in the Home

- (a) Opportunities for thinking and imagination in daily activities
- (b) Use of T.V. and such other media
- (c) Use of books, periodical literature, library and other facilities
- (d) Nature and quality of toys, games and hobbies made available to the child

6. Family Security

- (a) Stability and Rationality of the household
- (b) Acceptance of the child by the parents

In the above listing, work habits in the family*, Dave's sixth

*Dave discusses work habits in the family in terms of (a) the degree of structure and routine in the home management and (b) the preferences for educational activities over other pleasurable things. He says that the variety of roles that the child has to play in a well-managed home appears to be crucial in developing flexibility and quickness in work which are the prerequisites of successful learning (Dave, 1963, pp. 37-38).

process characteristic, is omitted (the statistical rationale, for its omission is set out in chapter 3) and replaced with Family Security, which was proposed by Vernon (1965).

A detailed discussion follows of each of the environmental process variables:

Achievement Press

Achievement Press refers to the role the home plays in motivating the child to learn, the standards of achievement expected, in short, the ambition of the parents for the child's educational development. Included here are such traits as attitude of parents towards education, the goals of the parents and the means adopted to achieve these ends. The ambition of the parents for the child's educational future is reflected in their attitudes. The goals they set for the child put pressure on the child, and in a major way influence what he does in school.

Language Models

Language Models refer to the examples the child has in determining his own speech habits and patterns. This process begins very early and often in a subtle way. As Dave rightly concludes:

The home environment plays a very important role in the development of the child's verbal facility as a part of the socialization process much before he enters school. The quality of his language usage depends upon the kind of language models available to him in the home at the initial stages of his language development (Dave, 1963, p. 29).

Academic Guidance

Academic Guidance refers, as the name implies, to the guidance and direction the parent gives to the child's educational development. It has to do specifically with the help given with school subjects. To give this guidance the parent needs to be in close touch with the child every step of the educational way. He needs to give guidance as to what can be done, where knowledge could be found and how it could be used. But this help does not imply that the parent must do the actual work. It means rather that the parent must encourage the child to discover things on his own and to make use of his natural curiosity. The parent therefore provides the background for the child's exploratory behaviour.

Activeness of the Family

Activeness of the Family refers not solely to the physical movements of members of the family but suggests the purposeful, educational-directed activities indulged in. Such activities have a direct and positive influence on the educational development of the child. The child interacts with his talking environment so as to learn words, their meaning and significance; with the human environment so as to learn the behaviour of others in relation to himself. In short, communication, generalization and discrimination, and also perception have their birth and are developed in the atmosphere that is the home.

Intellectuality in the Home

Intellectuality in the Home refers to the stimulating materials and actions in the home and the general challenging atmosphere surrounding the child. The importance of experiences cannot be ignored as a vital factor in a child's educational development. The world of things, of people, of ideas, play a tremendous part in an individual's life. The child has his first introduction to these in the home depending on the atmosphere pervading the home. It is here that conceptual thinking, problem solving skills should have their start and be given their direction. The intellectual complexity of the home, the challenge provided for rational thinking, play tremendous roles before and after the child starts on the road to academic prowess.

Family Security

Family Security refers to the atmosphere in the home which engenders a feeling of contentment and belongingness⁶⁷. It speaks of the smoothness with which the family carries out its activities, the orderliness of the household affairs.

The development of self control and of rational thinking in children is highly necessary for improved achievement at school. The parents can do much to help here. Davis (1948) and Vernon (1965) have emphasized the harm that can be done to a child's development when there is anxiety and insecurity in the home resulting from deprivation of the basic needs. On the other hand, Davis (1948) has pointed to the

helpful effects of the opposite home environment which is extensively controlled. The lack of anxiety in the home, the approach to discipline and the encouragement given to general interaction should therefore all have positive effects on the child's educational development. This points up the need for a smooth running household.

Rationale for Replication

As stated earlier, this study explores the relationship of E.P.V. in the home and the performance of the child at school. But home conditions and processes differ from culture to culture and it can be argued that home environments in different cultures will have differential effects on school performance. It was hypothesized that the effects of the home on the achievement of Trinidadian children could differ markedly from those reported by Dave whose study was done in a Chicago setting.

In a general way, the point about the differences between the American and West Indian Negro is underscored by Glazer and Moynihan in their book Beyond the Melting Pot. "The West Indian's most striking difference from the (American) Negroes," they say, "was their greater application to business, education, buying homes, and in general, advancing themselves." Quoting from James Weldon Johnson's description, Glazer and Moynihan (1963) continue "...they (the West Indians) average high in intelligence and efficiency, there is practically no illiteracy among them, and many have a sound English common school education..."(p. 35).

Even more significant in pointing up the differences between the West Indian and the American Negro is the psychological milieu. A life of oppression, frustration and stultification of initiative can engender the reaction in people, 'well, what's the use.' As Silberman (1964, p. 102) says, the American Negroes do not ask, "Can we do it?" but "Will they let us do it?" With the West Indian, the position is completely different, for he is more aware of the forces which influence his future standing in the community. To the extent that he is ego-involved in his community, to that extent will he have a greater need for achievement.

The West Indian parent believes in his child's advancement and achieving what he himself did not achieve academically. The striving of the parent is passed on to the child and sharpens the desire for educational attainments. The intensity of this valuing of education both by Trinidadian parents and children may be quite different from the apathy which characterizes many of the disadvantaged included in the Chicago sample that Dave studied.

A possible explanation of the difference may be found in Manley's (1959) assessment. He says:

...Most underdeveloped countries are undergoing rapid social change, and their educational systems exert a powerful influence upon the nature and direction of that change...the individual frequently sees education as a major, if not the main avenue, of social mobility and in the West Indies in particular...education provides one of the few important channels through which the lower social groups can climb into the relatively privileged ranks of the middle class (p. 51).

The striving of the West Indian can be seen most clearly in the attainments of the present West Indian who was once a slave. Williams (1960) discussing race relations in the Caribbean, makes the point that:

The Caribbean can boast of dozens of Negro lawyers and thousands of white sugar workers, reversing the pattern of Caribbean society of two centuries ago. The rich Negro in Puerto Rico, the wealthy Indian in Trinidad, the opulent Chinese in Cuba, rub shoulders with the poor Whites in Grenada, the Red Legs of Barbados, the jibaros of Puerto Rico, and the Chachas of St. Thomas (p. 59).

Because of this striving for education there is no need to enforce the laws providing for compulsory school education. The parents are so eager that their children should "get ahead" that they enter the children's names (as early as three years of age) on already lengthy waiting lists at the elementary schools. Before the universities of Jamaica, Trinidad, Barbados, and Guyana were established, thousands of scholars left the West Indies for study in England, the United States, Canada and Europe. Now that universities have been established in the West Indies, not only has the flow of students abroad not stopped, but the newly established universities are already crowded.

Whatever it's historical past, today the West Indies, possible as a rebellion against a background of slavery and colonial oppression, as a rebellion against the disastrous training for mediocrity and servitude, is a vibrant example of the "flaming faith" of a people, of the determination of its sons, who will become leaders to work in the

present so as to order their own future.*

If this vision originated with the parents, the flaming faith is being engendered in their children. In 1946, in Trinidad, 26% of the population** over 15 were illiterates, in 1960, 76% had had more than 5 years of education. The children are on the move and are preparing themselves academically. The primary school system in Trinidad and Tobago embraces over 90% of the population of primary school age. There is an ever growing demand for secondary level education (attendance in 1964 ranged from 92% - 95% of the secondary school population). There is a great demand for nursery school places and this has entailed the admission of 5 year-olds into the primary schools. There is a low rate of drop-out and of repetition of classes.

Taking the above into consideration, it can be argued that the conditions and forces operating on the Trinidadian child may not be the same as on the children that Dave studied. Where, in comparison, the Trinidadian home may lack the material things included in Dave's variables, the effects may be more than counter-balanced by the value placed on education in Trinidad.

*The argument is reflected in the poem "To the Unborn Leader" by H.A. Vaughan, Anthology of West Indian Poetry.

**All figures from Educational Planning Mission: Trinidad and Tobago, 1964.

Hypotheses

Environmental process variables have proved to be predictors of school achievement in American, Scottish and English settings. It is possible that this approach may or may not prove as successful in another culture, especially in one of the developing nations where education is universally valued. The study advances the following hypothesis to test for the relationship between what goes on in the home and the school performance of Trinidadian children.

1. The relationship between the measure of school achievement and the Index of Educational Environment in the home will be greater than between the school achievement and the Index of Social background.

Many measures have been used in the prediction of school achievement, intelligence, social status, etc. Recent research has supplied evidence to support the fact that what goes on in the home may be very pertinent to the determination of how the child will achieve in school. To test this finding in the Trinidad setting, the following hypothesis is advanced:

2. In predicting school achievement of Trinidadian children, there will be statistically significant differences in the independent contributions made by each one of the Index of Educational Environment, measured intelligence (verbal and non-verbal), and the Index of Social Background.

CHAPTER III

METHODOLOGICAL CONSIDERATIONS

Variables

The relationship of four variables to achievement were explored: Verbal Intelligence, Non-verbal Intelligence, Social Background and an Index of the Educational Environment of the home.

Achievement Variables

The particular achievement variables selected for examination were vocabulary, language usage, spelling, arithmetic and reading comprehension. The Iowa Test of Basic Skills with reported reliabilities of from .70 to .93 for these subtests, "devised to test functional skills of children in grades 3-9" (Herrick, 1959, p. 30) was used to measure the above. The work-study skills subtest of the Iowa was omitted because of Herrick's (1959) judgment that it would "present special difficulties to children whose school curriculum is impoverished" (p. 33). The omission was expected to make little difference, for the composite reliabilities for the whole test range from .97 to .98 (p. 31).

Since there is a large number of achievement tests available, a choice of one had to be made. The decision to use the Iowa was based on its high rating and on the fact that it appeared on the basis of its content and language to be the most suitable with respect to the

cultural and educational background of the Trinidadian pupils.

To establish the suitability of the Iowa, a pretest was run with 48 Trinidadian pupils. The intercorrelations among the subtests from that pretest are shown below the diagonal in Table 3.1. The intercorrelations among the subtests as reported in the manual are shown above the diagonal.

As can be seen from Table 3.1, the intercorrelations among the subtests for the pretest (below the diagonal) are all positive and above .50 in all but one instance. They compare favourably, for a sample of 48, with the intercorrelations from the manual, for a sample of 437. The Iowa was therefore deemed to be a suitable test to use with Trinidadian pupils.

TABLE 3.1
INTERCORRELATIONS AMONG FIVE SUBTESTS OF THE
IOWA FROM THE MANUAL (N=437) AND
THE PRETEST (N=48)

SUBTESTS	1	2	3	4	5
1. Vocabulary	--	.75	.65	.66	.83
2. English Usage	.56	--	.59	.64	.71
3. Spelling	.64	.65	--	.57	.64
4. Arithmetic	.54	.57	.64	--	.66
5. Reading	.61	.55	.60	.45	--

Correlations above the diagonal are for the subtests as reported in the Manual, those below the diagonal are for the pretest.

Intelligence Variables

Measures of verbal and non-verbal intelligence were obtained by administering Level 3 of the Lorge-Thorndike Intelligence Test. Level 3 of "the Lorge-Thorndike" comprises both a verbal and a non-verbal part. The parallel set of non-verbal tests is intended according to Anastasi (1964) "...to provide a more adequate basis for appraising the abilities of children with inferior educational backgrounds or with special reading disabilities" (p. 218).

The test was originally standardized on a wide range of socio-economic and educational variables. Parallel form reliability coefficients were .89 for the verbal and .81 for the non-verbal parts of Level 3. Odd-even reliabilities were .94 for both verbal and non-verbal parts (Anastasi, 1964, pp. 219-20).

As with the Iowa, the suitability of the Lorge-Thorndike for use with Trinidadian pupils had to be established. For this, 10 of the 48 pupils of the pretest sample were tested with it. The teacher was asked to select 5 pupils who from his observation were considered to be very intelligent and 5 who were considered low in intelligence. The pupils were tested with the Lorge-Thorndike Intelligence Test both verbal and non-verbal. The tests discriminated in all instances between the high and low intelligences as determined by teacher observation.

Social Background

In order to determine the pupils' social background, a questionnaire was compiled. (See Appendix A). Many studies use only the father's occupation as the basis of social classification. Manley (1959) in his study of the achievement of Jamaican children, Dave (1963), following Warner (1949) and others, relied mainly on a social classification based on father's occupation. However, Douglas (1964) rejected occupation as the main indicator of social background for the reasons that self reported job descriptions are often imprecise and grossly misleading, that individuals fluctuate from job to job, that the father's occupation can give a false impression of the environment of children who are maintained by mothers, god-fathers or others. Also, Douglas suggested that the education of both parents be considered in arriving at an index of social background, for "...it is not unusual to find that the mother comes from a middle class family and supplies the drive and incentive for her children to do well at school" (p.42).

Bearing in mind Douglas' criticisms, a number of primary measures of the child's social background were obtained, namely, mother's and father's education, mother's and father's occupation, family income, location of residence, type of residence and quality of home furnishings.

Though there is precedence in the literature for the use of these measures (Vernon, 1965; Lavin, 1965; Mayer, 1953; Braithwaite,

1953), a method of arriving at ratings on these measures had to be determined. A sociologist, an education official, and teachers in Trinidad who were familiar with the Trinidad social structure and with the economic and class structure were asked to order localities and residences in a social context. From informal discussions with these people, decisions with respect to the rating scales for the above criteria were made. A nine point scale was devised for each of the six criteria of social background. The scaling on each criterion is shown in Appendix B.

The questionnaire was pretested on the 48 pupils from the Trinidad pilot school. The intercorrelations among the indices are given in Table 3.2 and the factor matrix (unrotated) in Table 3.3.

TABLE 3.2

INTERCORRELATION AMONG THE SIX SUBTESTS FORMING
THE INDEX OF SOCIAL BACKGROUND N=48

VARIABLE	1	2	3	4	5
Education	-				
Occupation	.87	-			
Income	.87	.84	-		
Location of Residence	.78	.76	.76	-	
Type of Home	.73	.69	.73	.73	-
Furnishings	.77	.71	.72	.70	.76

TABLE 3.3
UNROTATED FACTOR MATRIX FOR THE SOCIAL
BACKGROUND SUBSCORES

No.	Variable Name	Communality 3 Factors	Factor Number		
			1	2	3
1	Education	.957	.903	.320	-.198
2	Occupation	.949	.954	.184	.070
3	Income	.946	.960	.142	.053
4	Location of Residence	.956	.927	-.063	.305
5	Type of Home	.942	.909	-.339	.006
6	Furnishings	.960	.912	-.257	-.250
		5.710	5.165	0.342	0.203

As shown in Table 3.2 the intercorrelations are high ranging from .71 to .90. The factor analysis yielded one main factor accounting for 81% or more of the variance on each of the six indices, thus justifying the decision to use the combined scores from all the indices as a single measure.

Index of Educational Environment in the Home

Scores on the process variables of achievement press, academic guidance, activeness in the family, language models, intellectuality in the home, and family security were used to measure the more complex

variable, Index of Educational Environment in the home (IEE).

To arrive at the IEE, the questionnaire prepared by Dave (1963) was amended as shown in Appendix C. The major amendment was the exclusion of questions relating to Dave's sixth process variable, Work Habits in the family, which in his original factor analysis showed an eigenvalue of only .087. Vernon's (1965) questions for the scaling of Family Security were added. This scale showed a positive correlation with achievement in his studies with Jamaican and English children. Other amendments were of a linguistic nature to make the questions more meaningful to the Trinidadian mother, for example "grade" was changed to "standard," "college" to "university." Words like "winter" which would be out of place in the Trinidad situation were excluded.

The interview schedule (Appendix C) contains fifty-seven questions. Nearly all of the questions have subquestions for the purpose of eliciting precise and comprehensive responses. As shown in Table 3.4, the questions included in the schedule are designed to obtain specific evidence about the different variables and their process characteristics.

Table 3.4 indicates that there are no questions listed for the process characteristic 2a. This characteristic refers to the quality of language usage of the parent. The language usage of the mothers interviewed was rated on the basis of the conversation during the interview in terms of (1) fluency, (2) pronunciation, (3) vocabulary, and (4) organization of thoughts. Specific evidences were listed

TABLE 3.4

THE ENVIRONMENTAL PROCESS VARIABLES AND THEIR RELATED
QUESTIONS IN THE INTERVIEW SCHEDULE

Environmental Process Variables	Environmental Process Characteristics	Question number in the Interview Schedule
1. Achievement Press	1a	1, 2, 3, 4, 5, 6, 7.
	1b	8, 9, 10, 11, 12.
	1c	13, 14, 15, 16, 17.
	1d	13, 18, 19, 20, 21, 22.
2. Language Models	2a	Determined by to- tal verbal response.
	2b	9, 23, 24, 25, 26, 27, 28, 29.
	2c	29, 30, 31, 32, 33.
3. Academic Guidance	3a	16, 17, 20, 34, 35, 36, 46.
	3b	31, 37, 38, 39, 40, 41.
4. Activeness of the family	4a	9, 25, 26, 41.
	4b	8, 9, 23, 26, 42.
5. Intellectuality in the home	5a	43, 44, 45.
	5b	41, 45, 46.
	5c	47, 48, 49.
	5d	9, 30, 32, 41.
6. Family Security	6a	36, 50, 51, 52.
	6b	53, 54, 55, 56, 57.

during the interview for the purpose of the rating. The scale used for the rating is given in Appendix D.

The last column in Table 3.4 shows that the ordering of questions is not entirely based on the serial order of the environmental process characteristic. The questions were arranged as indicated in Appendix C so as to establish links among them and to build up a natural flow of conversation in the interview. A few questions belonged to more than one process characteristic.

Following the directions set out in Appendix D, 17 indicators of the six process variables were rated for each of the 60 pupils. The rating scales used for all but the Family Security variable were the same as those used by Dave (1963). For Vernon's Family Security a nine point scale was devised as reported in Appendix D. The 17 indicators were described in Chapter 2 and the scales for them appear in Appendix D, where each process characteristic is specified in terms of the criteria for evaluation. The numbers of the questions of the interview schedule, which provide information for the respective characteristics, are also listed there. The scores on these 17 indicators were intercorrelated with the results shown in Table 3.5. They were then submitted to factor analysis, using the principal axis approach. The unrotated factor matrix for the 17 characteristics is shown in Table 3.6.

TABLE 3.5

INTERCORRELATION MATRIX OF THE 17 I.E.E. CHARACTERISTICS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1																	
2	.85																
3	.86	.85															
4	.66	.74	.77														
5	.46	.47	.33	.43													
6	.81	.79	.85	.74	.41												
7	.76	.79	.83	.73	.28	.79											
8	.82	.81	.85	.76	.36	.84	.78										
9	.82	.81	.86	.77	.39	.83	.79	.85									
10	.77	.73	.74	.70	.48	.85	.68	.78	.78								
11	.78	.78	.80	.72	.30	.81	.72	.85	.81	.75							
12	.80	.73	.81	.74	.32	.79	.73	.78	.83	.78	.83						
13	.79	.80	.84	.77	.30	.81	.82	.85	.85	.75	.85	.79					
14	.81	.79	.83	.75	.34	.80	.73	.82	.85	.80	.90	.88	.86				
15	.73	.78	.81	.79	.36	.82	.77	.85	.83	.75	.80	.79	.79	.82			
16	.73	.74	.71	.73	.40	.76	.70	.74	.68	.75	.79	.74	.76	.77	.67		
17	.78	.76	.80	.77	.36	.78	.70	.77	.79	.74	.79	.79	.82	.86	.78	.76	

TABLE 3.6

UNROTATED FACTOR MATRIX FOR THE 17 INDICATORS OF
EDUCATION ENVIRONMENT OF THE HOME

Variable Number	Communal- ities	Factor Number					
		1	2	3	4	5	6
1	0.926	-0.893	0.089	0.056	0.314	-0.056	0.124
2	0.896	-0.894	0.093	0.190	0.101	-0.170	0.115
3	0.903	-0.921	-0.102	0.199	0.040	-0.002	0.056
4	0.947	-0.850	0.064	0.045	-0.465	-0.047	-0.006
5	0.980	-0.448	0.877	0.038	-0.025	0.030	0.077
6	0.921	-0.914	0.023	0.038	0.086	0.068	-0.269
7	0.910	-0.858	-0.135	0.321	-0.016	-0.188	-0.134
8	0.866	-0.920	-0.059	0.071	0.045	0.060	-0.078
9	0.901	-0.920	-0.037	0.121	0.024	0.174	0.087
10	0.931	-0.868	0.158	-0.179	0.102	0.161	-0.289
11	0.884	-0.905	-0.134	-0.202	0.056	0.001	0.044
12	0.868	-0.895	-0.093	-0.171	0.011	0.149	0.083
13	0.876	-0.916	-0.154	0.031	-0.006	-0.087	0.061
14	0.940	-0.925	-0.104	-0.207	0.021	0.087	0.147
15	0.897	-0.892	-0.055	0.108	-0.180	0.225	-0.056
16	0.966	-0.841	0.064	-0.296	-0.034	-0.383	-0.142
17	0.866	-0.887	-0.035	-0.157	-0.116	-0.044	0.194
	15,476	12,990	0.919	0.476	0.399	0.372	0.321

As can be seen from Table 3.6 above, factor analysis yielded only one substantial factor with an eigenvalue of 12.99 accounting for 75% of the variance. All the other factors had eigenvalues of less than 1.00. With this result, which duplicated Dave's finding of one principal factor accounting for 60% of the variance in his data, along with the high intercorrelations among the 17 characteristics as shown in Table 3.5, the decision was justified to use a simple addition of

the 17 scores to arrive at the Index of Educational Environment in the home.

Reliability of the IEE

To establish the reliability of the IEE, the Analysis of Variance method of estimating reliability, proposed by Winer (1962, pp. 126-130) was used. In this method, it is not necessary to split a test into halves. Instead, the variance "between people" and "within items" is used in the following formula (Winer, 1962, p. 130):

$$\frac{MS_{\text{between people}} - MS_{\text{within items}}}{MS_{\text{between people}}}$$

A two-way Analysis of Variance, Single factor experiment with repeated measures was computed for the 60 pupils and the 17 characteristics of the IEE. The estimated reliability using the formula was .96.

As a further check on the reliability of the IEE, an inter-rater reliability was computed. The interview forms for a random sample of the 30 cases were scored by two independent raters.* The correlation between the two ratings was .80.

The reliability coefficient of .96 is an estimate of the internal consistency of the ratings made by the author. The correlation coefficient shows that the author's ratings could be replicated by a second judge familiar with the rating scales and data.

*The independent rater was a graduate student in Educational Psychology. He was given Dave's rating instructions and worked with the interview forms and tapes in arriving at his ratings.

TABLE 3.7
TWO-WAY ANALYSIS OF VARIANCE FOR
THE 17 IEE CHARACTERISTICS

Source of Variation	Sums of Squares	df	M.S.
Between people	964.17	59	16.43
Within items	409.41	960	0.43
Between items	96.22	16	6.01
Residual	313.19	944	0.33
Total	1373.58	1019	

Sample

The pupils were selected from two schools in Port of Spain, Trinidad (See Map of Port of Spain, overleaf), one of which predominantly serves children from homes with middle class background (Tranquillity School, School T) and the other, children from homes of middle to lower class background (Piccadilly School, School P).

Any child, irrespective of his background, can attend either School T or School P. The schools keep waiting lists and admissions are made as vacancies arise.

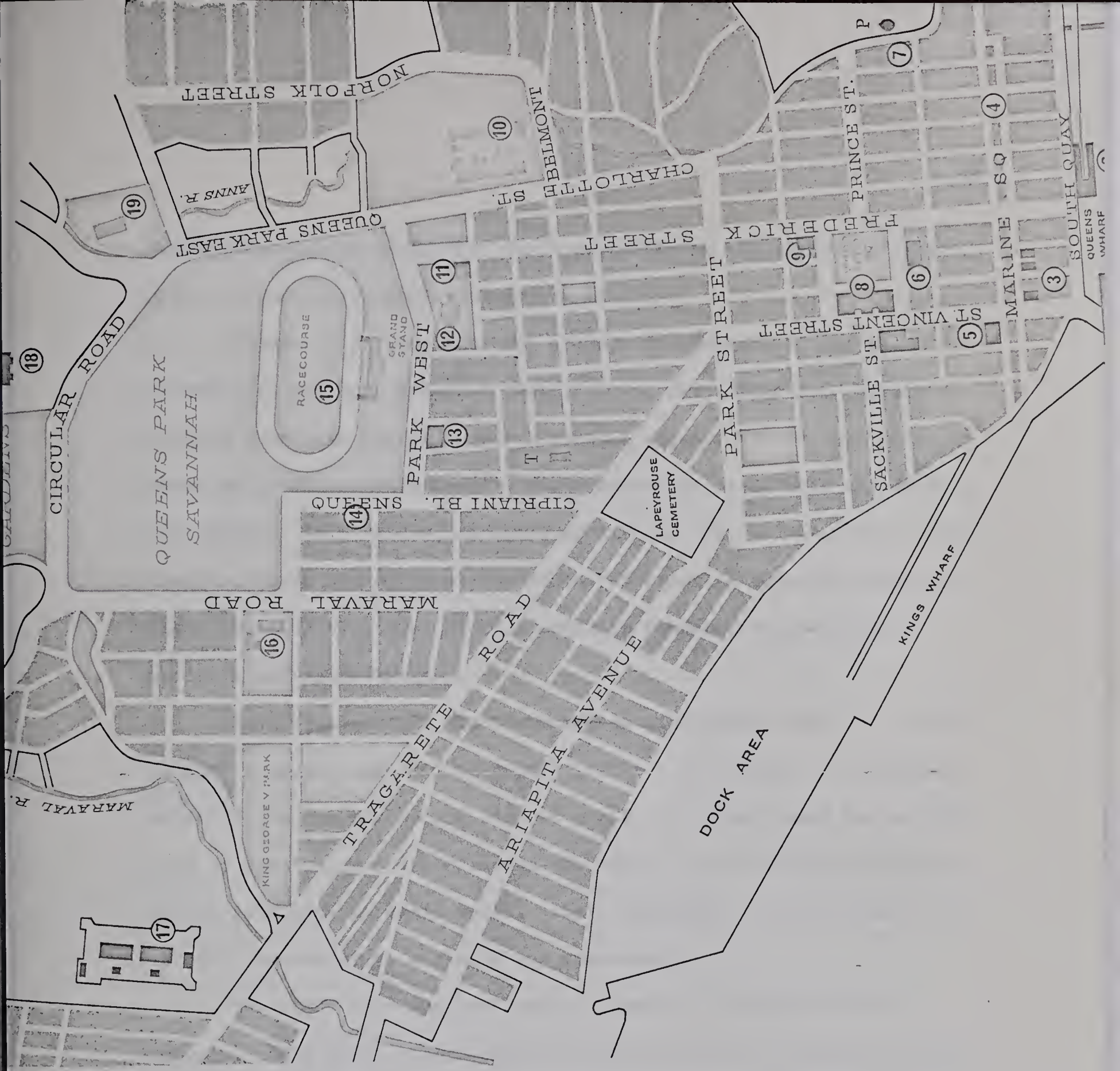
These two schools were selected because it was thought that the pupils chosen would constitute a wide range in terms of the economic, social and status positions of their families. The thinking was that samples selected from these schools would have represented a

PORT OF SPAIN - TRINIDAD



1. H.M. Customs
2. R.R. Station
3. Cable Office and Banks
4. Roman Catholic Cathedral
5. Treasury and General Post Office
6. E.C. Cathedral
7. Jama Masjid Mosque
8. Government Buildings
9. Town Hall
10. Colonial Hospital
11. Royal Victoria Institute
12. Prince's Buildings
13. Queens Park Hotel
14. U.S. Embassy
15. Trinidad Country Club
16. Queen's Royal College
17. St. James Barracks
18. National Museum and Art Gallery
19. Trinidad Hilton Hotel

- Tranquillity
- Piccadilly



sufficiently broad range with which to determine the effects of the home environment on school performance.

Though it is true that any child, irrespective of his background, can get into School T today, it was not always so. Formerly, because fees were charged, only a certain segment of the population - those with the economic means - could afford to keep their children at the school. As a result, though education is free at the school today, that is, there are no fees, the school carries the aura and reputation that its population must be of a certain standard, economically, socially and status-wise.

From this school, then, a sampling of children from all levels - economic, social and socio-economic status - was found. By contrast, School P (on the right hand side of the Port-of-Spain map) has no such aura or reputation. The children who attend the school do so because of its proximity to their homes. Their background, for the most part, is poor economically, socially and status-wise.

The study used pupils from the Standard IV classes in both schools. This particular class was chosen because it contained pupils ranging from age 10 to 11 years, the age range studied by Dave. It was hoped that this would provide a basis for meaningful comparison with Dave's group.

The sample was chosen so as to obtain a wide spread on the achievement variable as well. The achievement tests were administered to the pupils in School T and School P on two successive days. The

pupils were first screened for age. They were not tested if they were older than 11 years of age on the day of testing. At School T, there were more pupils within the age-range than could be accommodated in the testing room. The pupils were lined up and 50 boys selected on the basis of every second boy in the line. In the same manner 50 girls were also selected. At School P, all the pupils meeting the age criterion, a total of 90, were tested.

A random sample of 15 boys and 15 girls from School T representing a wide spread on the achievement variable was chosen. The same was done for School P. These 60 students represent the sample for whom the data is analyzed in the following chapter.*

Data Collection

Social Background data, Achievement and Intelligence (Verbal and Non-verbal) data were collected from 190 pupils in the Standard IV classes, of School T and School P. From these pupils the sample of 60 was chosen, the mothers of whom were interviewed to get the data for the Index of Educational Environment in the home.

A week before the tests were administered, the social background questionnaires were filled out by all the pupils. Where they lacked the necessary information, they were asked by their teachers to obtain it from their parents.

*Though the sample was to comprise 60 pupils a total of 190 pupils were tested. It was argued that while the pupils were together, getting the data would have proved useful possibly for additional or follow-up studies.

The Iowa Test of Basic Skills and the Lorge-Thorndike Intelligence Test, Level 3, (Verbal and non-verbal parts) were administered to the pupils in School T and School P on two successive days to obtain the achievement and intelligence data.

While the data for social background, for achievement and for intelligence were collected in the two schools, the interviews, from which the Index of Educational Environment was obtained, were conducted with the mothers at their respective homes. A check of the areas of residence showed that children came from all parts of the city. The selection was as follows:

Tunapuna	1	Belmont	3
San Juan/Morvant	5	St. Anns	4
Piccadilly area	12	St. James	3
East Dry River	13	Diego Martin	8
Port-of-Spain	9	Woodbrook	2

As some of the pupils indicated on the social background blank that they had no telephone at home, the interviewer relayed the information that he was coming to talk with their parents via the pupils themselves. The pupils were asked also, to indicate when their mothers would be at home. The advance information proved helpful because the interviewer was eagerly awaited when he arrived at the various homes. In line with Dave's study, only mothers were interviewed. His argument, which also holds for the Trinidadian mother, was that "...the mother generally shares a greater responsibility in the development of the child, particularly during the early childhood and elementary education period" (p. 44).

In all cases, the mother agreed to the interview after an explanation of its purpose was given. The explanation went as follows:

Good day/night. I am making a study of your child in relation to his school work and home life. This is with a view to helping him and helping you to help him. The purpose of all this is so that I can advise the Ministry when they call on me for ways of helping all children, including especially your child. I shall appreciate it, then, if you are frank with me and give me, to the best of your knowledge, the correct answers to my questions. By the way, your child may have told you that I was talking to him/her at his/her school.

A focused interview technique was used. The focused interview:

...is a semi-standardized variation of the interview technique. It provides freedom to the interviewer to ask "probe" questions where necessary, discuss certain characteristic situations in details, and thereby obtain valid information on different aspects of investigation. On account of the complexity and subtlety of the environmental process variables, it was necessary to allow such freedom to the interviewer for eliciting comprehensive and precise information about the interactive processes operating in the home. The detailed and precise information thus obtained may also improve the reliability of the interviewer's judgment. A completely standardized interview may not have all these advantages (Dave, 1963, p. 42).

CHAPTER IV

ANALYSIS OF THE DATA

As a first step in the analysis it was necessary to determine if the two schools selected for the study could be considered as samples from a single population of pupils and similarly, whether the test scores for boys and girls could be combined for purposes of analysis. The data relevant for answering these two questions is given in Table 4.1.

For each of the five variables a separate factorial analysis of the variance of the school and sex means was computed. A summary of this analysis is reported as Table 4.2

The results of this preliminary analysis were similar for each of the five variables. In each instance, the variance in the means attributable to sex differences and to the interaction of sex and school was small and unreliable. For practical purposes the data for boys and girls could be combined. On the other hand, differences between the two schools were substantial. The difference was greatest for Social Background, Verbal Intelligence and the Index of Educational Environment in the Home. It was least marked, though statistically significant, for the measure of Non-Verbal Intelligence. Apparently, then, the freedom of all parents to send their children to either school is not being exercised. The effect of the choice of these two schools for study was to identify children who, in fact, represented

TABLE 4.1

MEANS AND STANDARD DEVIATIONS BY SCHOOL AND SEX
FOR THE FIVE VARIABLES OF THE STUDY

Variables	\bar{X}	School T S.D.	\bar{X}	School P S.D.	\bar{X}	Total S.D.
Achievement						
Boys	96.1	22.1	44.3	11.5	70.2	31.3
Girls	88.1	20.3	48.7	14.5	68.4	26.5
Total	92.1	21.6	46.5	13.3	69.3	29.0
N.V. Intelligence						
Boys	102.8	11.8	83.7	7.6	93.2	13.8
Girls	99.1	13.1	84.6	9.9	91.8	13.7
Total	100.9	12.6	84.1	8.9	92.5	13.8
V. Intelligence						
Boys	103.9	6.3	77.1	8.8	90.5	15.4
Girls	102.5	9.1	78.5	11.1	90.5	15.7
Total	103.2	7.8	77.8	10.0	90.5	15.6
Index of Social Background						
Boys	33.0	8.2	14.4	3.2	23.7	11.2
Girls	29.0	6.6	14.3	3.3	21.6	9.0
Total	31.0	7.7	14.3	3.3	22.7	10.2
Index of Educational Environment						
Boys	107.8	10.6	60.0	10.2	83.9	22.1
Girls	103.5	7.3	62.7	10.9	83.1	21.4
Total	105.7	9.4	61.4	10.6	83.5	22.3

TABLE 4.2

SUMMARY ANALYSIS OF VARIANCE OF SCHOOL AND SEX
MEANS FOR THE FIVE VARIABLES OF THE
STUDY N=60

Variable	Source	Mean Square	df	F	P.
Achievement	Sex	50.4	1	0.2	0.70
	School	31236.0	1	93.8	0.01
	School/Sex	582.8	1	1.8	0.19
	Error	332.9	56		
Intelligence (Non-Verbal)	Sex	29.4	1	0.2	0.63
	School	4233.5	1	33.8	0.01
	School/Sex	81.7	1	0.7	0.42
	Error	125.3	56		
Intelligence (Verbal)	Sex	1.1	1	0.1	0.99
	School	9652.0	1	111.7	0.01
	School/Sex	28.0	1	0.3	0.57
	Error	86.4	56		
Social Background	Sex	64.1	1	1.8	0.18
	School	4166.6	1	118.9	0.01
	School/Sex	56.1	1	1.6	0.21
	Error	35.0	56		
Index of Educational Environment in the Home	Sex	72.6	1	0.7	0.39
	School	10827.3	1	109.8	0.01
	School/Sex	5.4	1	0.1	0.82
	Error	98.6	56		

quite different pupil populations. To treat them for further analysis as though these differences did not exist would obscure, rather than clarify the relationships between achievement and the predictor variables.

Hypothesis I

The first hypothesis predicted that the relationship between the measure of Educational Environment in the home (I.E.E.) and School achievement would be significantly greater than that between the Index of Social Background (I.S.B.) and achievement. The correlations for the test of this hypothesis are shown in Table 4.3. The correlations for School T are shown below the diagonal of the table, those for School P above the diagonal.

Inspection of Table 4.3 indicates that the first hypothesis was sustained in both schools. For School T, the correlations between Achievement and Social Background and between Achievement and the Index of Educational Environment were $-.07$ and $.67$ respectively. For School P, the correlations were $.01$ and $.78$. Thus despite the large mean differences between the schools on these three variables, the relationship among the three was similar in each of the schools.

Taken singly then, the Index of Educational Environment proved to be a more reliable predictor of Achievement than the measure of Social Background, the latter, in fact, having no predictive value at all.

TABLE 4.3

CORRELATIONS BETWEEN CRITERION AND PREDICTOR
VARIABLES FOR SCHOOL T AND SCHOOL P
(N=30 each)

Variables		Correlation Coefficients			
1. Achievement	-	.70	.49	.01	.78
2. Intelligence N.V.	.44	-	.64	-.17	.51
3. Intelligence V.	.27	.48	-	-.14	.39
4. Index of Social Background	-.07	.02	.11	-	.27
5. Index of Educational Environment in the home	.67	.32	.11	.26	-

Correlations above the diagonal are for School P, those below the diagonal for School T.

Hypothesis II

A second analysis sought to evaluate the independent contribution of each of the variables, Verbal Intelligence, Non-Verbal Intelligence, Social Background and the Index of Educational Environment to the prediction of the criterion, Achievement Test Score. As a first step, a multiple regression analysis was completed to fit the general model:

$$\hat{Y} = A_0 + A_1X_1 + A_2X_2 + A_3X_3 + A_4X_4 : (R_1^2)$$

where

\hat{Y} = Predicted Achievement Score

A_0 = Constant

A = Weights such that the sum of the squared errors are at a minimum

X_1 = Non-Verbal Intelligence

X_2 = Verbal Intelligence

X_3 = Social Background

X_4 = Index of Educational Environment in the home

R^2 = The variance of Y in standardized form

For School T, the weights, in deviation form for comparative purposes, are as follows:

$$\hat{Y} = .1562 X_1 + .1457 X_2 + (-.2603 X_3) + .6740 X_4$$

and for School P,

$$\hat{Y} = .3765 X_1 + (-.0078 X_2) + (-.0999 X_3) + .6186 X_4$$

Taken together, the four predictors account for 74% of the variance in Achievement for School P ($R = .86$) and for a somewhat lesser percent, 58%, in School T ($R = .76$). In both schools, the IEE provided the most important contribution to the prediction. The other three variables entered into the formula in quite different ways. The Index of Social Background for School T made a major contribution to the prediction of Achievement, though not statistically significant under the criterion .05 level set for the study. Non-Verbal

Intelligence for School P proved to be a significant predictor complementary to the contribution of the Index of Educational Environment in the home.

The independent contribution of each of the four predictors in each of the schools can be evaluated by an analytical procedure developed by Bottenberg and Ward (1963). By excluding each of the predictors in turn, an F-test can be used to determine whether the resulting R^2 represents a statistically significant change from the R^2 obtained by using the total set of predictors. This analysis is reported below in Table 4.4 for School T and School P.

In both schools, the removal of the IEE as a predictor of achievement reduces significantly the variance of the achievement scores that can be accounted for.

Table 4.4 must be interpreted in relation to the intercorrelations of the four predictors as reported earlier in Table 4.3. It was not sufficient to know that the proportion of variance predicted was greatly reduced when IEE was removed. The question arose as to how much of the variance was being accounted for by the IEE and what additional contribution each of the other predictors made.

To provide an answer to this question, a stepwise regression analysis was completed with achievement as the criterion and the other variables as predictors. The data are fitted to the function:

TABLE 4.4

RESULTS OF REGRESSION ANALYSIS FOR SCHOOL T AND
SCHOOL P ON THE CRITERION AND PREDICTOR
VARIABLES (N=30 each)

+				
Predictor	R ²	Difference*	F	Prob.
All Predictors				
School T	.579			
School P	.743			
N.V. Intelligence				
Eliminated				
School T	.562	.017	0.98	.32
School P	.677	.066	6.40	.01
Verbal Intelligence				
Eliminated				
School T	.561	.018	0.99	.32
School P	.742	.001	0.03	.95
Index of Social				
Background				
Eliminated				
School T	.516	.063	3.66	.06
School P	.734	.009	0.80	.37
Index of				
Educational				
Environment				
Eliminated				
School T	.204	.375	22.19	<.01
School P	.513	.230	22.44	<.01

*Difference from R² using all predictors.

$$\hat{Y} = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4$$

where

\hat{Y} = Achievement Score predicted from the weighted linear combination of predictor variables

B_0 = Beta Weights

X_1 = Non-Verbal Intelligence

X_2 = Verbal Intelligence

X_3 = Index of Social Background

X_4 = Index of Educational Environment

This procedure orders the predictors according to the amount of variance each contributes to the criterion. The ordering is done in terms of best predictor, next best, and so on. At each stage, that variable is added which accounts for the largest proportion of the remaining variation of the dependent variable.

The results of the analysis are shown for School T in Table 4.5 and for School P in Table 4.6

As shown in Table 4.5, the IEE for School T accounts for 45% of the variance. Social Background explains only an additional 6% of the variance. Its relationship to the criterion is an inverse one. Social Background may be acting as a suppressor variable in terms of the variance, accounted for by the five variables. In fact, if it were excluded, the variance accounted for by verbal intelligence would be greater.

TABLE 4.5
RESULTS OF STEP-WISE REGRESSION FOR SCHOOL T
FOR THE FOUR PREDICTOR VARIABLES
(N=30)

Predictor Variables	% of Variance Accounted for	Beta Weights	t*
Index of Educational Environment	45	1.56	
Index of Social Background	06	-0.73	3.5
Verbal Intelligence	05	0.41	2.8
Non-Verbal Intelligence	02	0.27	1.0

*Significance of the partial correlation of the variables as they are added in step-wise order.

In the parallel Table 4.6 for School P, it can be seen that the IEE accounts for 61% of the variance. Non-verbal intelligence accounts for an additional 13% of the remaining variance. The influence of non-verbal intelligence for School P is seen as crucial in the study and is dealt with in the discussion of Language problem in the following chapter.

TABLE 4.6

RESULTS OF STEP-WISE REGRESSION FOR SCHOOL P
FOR THE FOUR PREDICTOR VARIABLES
N=30

Predictor Variables	% of Variance Accounted for	Beta Weights	t*
Index of Educational Environment	61	.77	
Non-Verbal Intelligence	13	.56	6.8
Index of Social Background	0.8	-.41	0.8
Verbal Intelligence	0.1	-9.55	0.0

*Significance of the partial correlation of the variables as they are added in step-wise order.

CHAPTER V

INTERPRETATION AND CONCLUSIONS

The purpose of the study was to examine the effect of the educational environment in the home on the school achievement of pupils in Trinidad schools. Phrased differently, the intention of the study was to answer the questions:

1. Is the educational environment in the home related to school achievement? and
2. Can achievement be predicted from a knowledge of the educational environment in the home?

The study answered the questions in the affirmative, thus replicating in a different culture the earlier findings of Dave. Three major inferences of significance to researchers and educators in Trinidad follow from the analysis.

The first inference was that the correlation between school achievement and the Index of Educational Environment in the home (I.E.E.) is higher than the correlations between achievement and the other variables despite substantial differences in the social and intellectual characteristics of pupils. For School T, the advantaged*, these data showed a correlation of $+0.67$ and for School P, the disadvantaged pupils, the correlation was $+0.78$.

*'Advantaged' and 'disadvantaged' are used here in terms of the social background indices discussed on page 31.

The correlation of achievement with I.E.E. proved to be significantly different at the .05 level, from the correlation of achievement with the Index of Social Background. This was so for both the advantaged and the disadvantaged pupils.

A second inference was that the multiple correlation is lowered significantly if the Index of Educational Environment is not used as a predictor of school achievement. This holds for both the advantaged and disadvantaged pupils. The I.E.E. accounted for 45% of the variance in the achievement test scores of the advantaged pupil and 60% of the achievement of the disadvantaged pupil.

A final inference is that for the advantaged pupil the I.E.E., taken in conjunction with the Index of Social Background, provides the most accurate predictor of his school achievement. The addition of either measure of intelligence does not increase the prediction materially. For the disadvantaged pupils, the best combination was the I.E.E. with a measure of non-verbal intelligence.

Discussion

Similar studies have been carried out in the United States of America, in Scotland and in Wales. On the one hand, it could be argued that children are children all over the world and that similar relationships to those which obtain elsewhere could be expected in the West Indies. The focus in the I.E.E. measure is on what the parents do in the home, and since their behaviour is controlled by

their particular culture, differential effects from different homes could logically be expected. Studies of people from different cultural and historical backgrounds are needed if only to point up the differences and/or similarities.

The inferences drawn from the analysis of data collected in Trinidad, as set out above, confirm the theory that it is not so much what the parent has as what he does with and for the child that has the greater influence on the child's school performance.

What the parent has, has been represented by researchers as socio-economic status (S.E.S.), the more traditional method of measuring home environments. What the parent does was not much considered before the late 1950s, but is here represented as the Index of Educational Environment in the home (I.E.E.).

The I.E.E. in this study accounted for a substantially greater amount of the variance in school achievement than did the more traditional S.E.S. This may have been expected for the disadvantaged pupils, imbued with the striving of their parents for something better for their children. However, the relationship also held for the advantaged pupils.

As noted in Table 4.1, the standard deviations for School T on the variables Social Background and Index of Educational Environment are 7.7 and 9.4, while for School P, they were 3.3 and 10.6. School P therefore shows less variability on Social Background ($F=5.5$; $p < .001$)

than School T, but more variability on Educational Environment ($F=1.3$; $p .25$). Thus, in schools of low social status, there can still be a wide range of educational environment in the home. This lends further support to the contention of the study that what the parent does in the home exerts more influence on the child's school performance than what the parent has.

These results are, in the main, consistent with the results of recent research and can be compared thereto. Using a different approach to the measurement of the home environment, studies done in the late 1950 and early 1960 have tended to indicate that an Index of Educational Environment provides a better prediction of school achievement. Though the instruments for measuring this environment are still not quite refined, Fraser has come up with correlations of $+0.75$ between achievement and home environment (Fraser, 1959, p. 71), Dave with correlations of $+0.80$ (Dave, 1963, p. 69), and the present study with a correlation of $+0.67$ for the advantaged pupils and $+0.78$ for the disadvantaged pupils.

Correlations between achievement and socio-economic status are usually in the order of $.50$ (Wolf, 1966, p. 496). But Dave's study, in which status considerations and process characteristics were clearly separated, yielded a low correlation ($.02$). The present study, similarly, yielded a coefficient of $.07$ for the advantaged pupils and $.01$ for the disadvantaged pupils.

The major departure from previous research was in the correlations of achievement with intelligence, correlations which typically fluctuate between $+0.40$ and $+0.80$. Dave found a correlation of $+0.76$ between achievement and intelligence. In contrast to Dave, the present study used both verbal and non-verbal measures of intelligence. For the pupils of advantaged school, the correlations with achievement were $+0.27$ for verbal intelligence and $+0.44$ for non-verbal intelligence and for the disadvantaged school, they were $+0.49$ and $+0.70$ respectively. The implications of this difference and the importance of using a measure of non-verbal intelligence will be discussed later.

Implications for Theory

The overall result of the study is consonant with certain recent findings (Rosenzweig, 1966) concerning the effects of deprived and enriched environments on the anatomical and chemical aspects of the brain. His study has shown that the environment, enriched by varied social and physical stimuli, will have a helpful effect on the intellectual development of the child. He has shown how such an environment can affect the brain physiology and chemistry. An enriched environment, he says, markedly increased glial and acetylcholine measures (pp. 325, 326), which are the neuro-chemical substrates of memory (Hyden, 1965). It also facilitates the transmission of information across the synapses (Krech, 1964; Luco and Goni, 1948).

Without both of the above, adequate intellectual functioning would clearly not be possible (Magoun, 1963; McLaughlin, 1963).

A more behavioral interpretation of the stimulating effects of an enriched environment comes from Hunt (1961, 1963). Recent emphasis on central processes and neurological studies have done much, he says, to consolidate the notion that potential and subsequent achievement involves an interaction of the individual with his surroundings. He concludes, "...it would appear that intelligence should be conceived as intellectual capacities based on central processes hierarchically arranged within the intrinsic portions of the cerebrum" (p. 362).

The central processes are involved in the development of abilities to solve problems and therefore, to achieve at school, these processes can be developed through experience and interaction with the environment. If this environment is enriched, it can help the child, if deprived, it can be deleterious.

Implications for Practice

One major implication for practice is suggested by the relatively low intercorrelations found between the measures of verbal intelligence and achievement scores.

As can be seen from the parameters in Table 4.1, there is overlap in the scores for both the advantaged and disadvantaged children on all variables, except social background and measures of verbal intelligence. Here the separation between the two schools is

nearly total. The question that must be considered therefore is why the marked discrepancy with respect to the verbal intelligence scores. The answer lies in a consideration of the language problem faced by Trinidadian children.

Trinidad, historically, has been a repository for many languages and language-groups. Though the official language is English, the French, Spanish, Chinese and Indian languages are very much in evidence. There are many patois-type versions of these languages. An English patois, the corruption of certain words or phrases, is also to be found. Michelangelo (1966) in his articles referred to this language as Creole English. An example would be "a way you goin'" for "where are you going?" If the patois can be said to constitute a distinct type of language, then one can say that the school child must at any one time possess two languages, or even three if he happens to be from a French or Spanish speaking home.

The disadvantaged child hears more of the patois from his parents who may not bother to "speak well." He hears more of it from his peers. However, in school, his teachers "speak well." It is quite possible that he does not fully comprehend his teachers' meanings or the language of the standardized tests.

The overlap among the pupils of the two schools on the non-verbal test indicates an overlap in abilities among the advantaged and disadvantaged children. Therefore, the great influence of the non-verbal intelligence on achievement of the disadvantaged pupils

points up a verbal weakness on the part of these pupils.

The teacher, therefore, in practice, should employ non-verbal measures in assessing the intellectual ability of these disadvantaged pupils. In terms of the actual teaching, steps must be taken to ensure that pupils understand what is going on. Mere verbal instruction would not do that. Illustrations, in the form of diagrams and charts, visual aids, with a minimum of verbal content, should be used. By painstaking and special means, the pupils need to be helped to understand the language used in instruction. As Michelangelo (1966) says:

The most important model, however, is the teacher. But the teaching situation is afflicted with problems which affect English as well as other subjects - overcrowded classrooms, inadequate training, lack of equipment, etc. Yet at the primary school level the teacher must see his job, not to stamp out, but to wean away the child from his natural means of expression - his Creole English - to a form of English that is socially more acceptable (p. 5).

A second major implication for practice concerns the home and what the parents do for and with the child. The I.E.E., as shown by the findings, is a significant and accurate predictor of achievement. These findings therefore emphasize the importance of looking at what the parents do with and for their children. It gives the teacher another important variable to consider in terms of influencing the child's school performance. The teacher can now look at what the parents do in the home as a possible predictor of the child's school performance. He also will have at his command a possible means of improving that performance.

Hitherto, educators have looked mainly at measured intelligence and if the child's was low, he was immediately discounted as an under-achiever. Similarly, if social background proved poor, the child was discounted. The present study seems to furnish one answer to the question as raised by Vernon (1958) and Frankel (1960) as to what other factors come into play if ability is not the sole determinant of success in school. The answer seems to be that the educational environment in the home is one major factor that comes into play.

Another major area for practice would involve both the teacher and parent in a cooperative effort. The teacher in the Parent Teacher Association meeting can point out to the parent the proven effect of the educational environment in the home on the school performance of her child and at the same time spell out means which the parent may employ to improve the educational environment in the home.

Linked to the above is what the teacher and school can do to supplement the job the parent may have neglected to do. It involves the development and implementation of new curricula to enable the deprived child to overcome the ill effects of a deficient home environment. Methods tried by "Operation Headstart" or in the "Great Cities Project" could and should be employed. Some of these methods and means will be spelled out in the section following dealing with recommendations.

Recommendations

The following recommendations do not all flow directly from the results of the present study. They should be viewed, however, as an attempt to tackle the overall problem, a small part of which was considered in the study.

Since, as indicated by this study, so much depends on the home environment and what the parents do in the home, there is every reason to suggest that more should be done by psychologists and educators to help parents to know more of what they should be doing for the educational good of their children and to act accordingly.

This consideration brings us to some recommendations, recommendations for the parent, for the teacher and the school and even for the Trinidad and Tobago Government. All have to pull together, for one must supplement the other. As Bloom, Davis and Hess (1965) say:

Ideally, the early intellectual development of the child should take place in the home....But we must express pessimism about such possibilities when the total syndrome of poverty, broken homes, slum living, large families and illiteracy all conspire against the intellectual development of the child....All later learning is likely to be influenced by the very basic learning which has taken place by the age of five or six. If adequate basic learning cannot be provided in the home, it is the responsibility of the schools to insure that the culturally deprived children have as good a set of initial skills and intellectual development as children from more culturally advantaged homes (p. 16).

Some suggested recommendations are as follows:

For the Parent

1. Parents should be encouraged, through instruction in better child rearing practices, to improve their children's verbal and communication skills.
2. Parents need to interact more with their children and encourage them to interact with other children and adults. A great deal of patience is needed in dealing with the retarded child, for he is the one who most invites rejection.
3. Parents need to supply their children adequate opportunities for gaining experiences - taking them on trips, supplying them with toys, books, taking them to zoos, plays, cinema shows, exhibitions, etc.
4. Parents need to provide countless opportunities for children to develop their discriminating and generalizing abilities and therefore their perceptions.

For the Teacher and the School

In the light of the study, attention needs to be paid to the conception of education generally and the curriculum in particular.

As Douglas (1964) says:

The nature and potentialities of different forms of educational institutions at the various levels will need to be re-examined....The contents of the curriculum will demand scrutiny....Above all, educational change will have to concern itself positively with efforts to involve children and young people in the processes of learning and discovery (p. XXIV).

The study has provided evidence against using the I.Q. as the chief basis for deciding if a child is teachable. It has supplied information which says that a low I.Q. child can be helped. The idea suggested by Bloom (1964) seems pertinent here. Progress should be measured not according to the norms of children in a class but according to the individual's advance from the point at which he started.

5. The deprived child should be spotted early by the teacher and an attempt made to widen his experiences.

6. To this end, schools should be furnished with even the more commonplace of replicas (of things in the outside world) and equipped with all kinds of Audio Visual Aids - record players, tape recorders, projectors, piano.

7. Individual attention is necessary. The home environment of one is not the same as that of the other. A study of the individual child and the appropriate word or response at the appropriate time may work wonders.

8. Supplemental education is needed for the deprived child. To this end, Government-controlled Nursery schools should be established and staffed with teachers specially trained to handle and deal with such children.

In such nursery-schools, much learning can take place through games, dramatic play, seeing and handling concrete materials. Children will hear music, be read to, and will enjoy other social experiences. They will be encouraged to see things and use

appropriate words, to build their vocabulary, to master their environment, to think. Through these several activities, they will learn to enjoy learning.

9. The medical-service staff and the school psychologists should link their resources with the teachers to ensure all-round improvement for the child.

Linked to the above recommendations for the teacher and school, are a few implications for the school administrator suggested by Farquhar (1965). He suggests:

- (a) With respect to under-achievers and "problem" children, the administrator can attempt a measure of the educational environment in the home, assess these data and then make suggestions to the teachers, for

...the selection of remedial methods for "problem" children and underachievers also may be simplified by a knowledge of the educational environment in the child's home. Thus both curricular and disciplinary decisions may be sharpened (p.4).

- (b) The administrator can also work with the parents in the P.T.A. Here he can inform parents of the significance of the educational environment in the home. They can be told of the constituents of this environment, how it can be manipulated and used for the educational improvement of the child.

For the Government

In considering recommendations for the Government, it may be well to bear another of Douglas' statements in mind. He says:

....the implications...are that the inequalities of the situation should be removed, not by depriving middle class children of a helpful environment, but by providing a comparable environmental stimulus for working class children (p. XX).

10. An improved housing scheme will help (this the Trinidad Government has already embarked on. It is hoped that it will be pushed along more vigorously).

11. A great deal more money needs to be spent on education generally so that materials and aids needed to supplement the meagre experiences of the deprived child can be acquired.

12. More importantly, a training programme for teachers aimed at helping them to know more about the deprived child and how to deal with him needs to be seriously considered and almost immediately implemented.

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APPENDIX A

SOCIAL BACKGROUND QUESTIONNAIRE

A. School _____ Teacher's Name _____

Name _____
(last name) (first name)

Address _____

Class _____ Boy Girl
(circle one) Birthday _____
(day) (month) (year)

B. With whom are you living now? Tick one

At home with parents? _____ In another home? _____

If with parents, mother? _____ Father? _____

If in another home, with whom? _____

Father's name _____ Mother's name _____

Guardian's name _____

C. Father's and Mother's education. Put F (for father), M (for mother),
near the appropriate one.

Degree _____ Professional training _____ G.C.E. _____

High School _____ Senior Cambridge _____ Elementary School _____

Completed _____ Not completed _____

D.& What kind of work does your father do? _____

E. Any other kind of work _____

About how much money does he make per month? \$00.00 - \$100.00,
(Underline one)

\$101.00 - \$200, \$201 - \$300, \$301 - \$400, \$401 - \$500,

\$501 - \$600, \$600 or more.

What kind of work does your mother do? _____

About how much money does she make per month? _____

F.& Where is your home located? _____ Is it a new house? _____

G. Does it belong to your parents? _____ How much rent? _____

Is it a self-help house? _____ Is it rented from Government? _____

With what material is your house covered? _____ What is your house
built of? _____ How many rooms are there in your home? _____

How many bedrooms? _____

H. Is there modern furniture in your house? _____ Give a short des-
cription of your house and its furnishings? _____

Is there a fridge? _____ Washing machine? _____ Electric iron? _____

Telephone? _____ Television? _____ Radio? _____ Running water? _____

APPENDIX B

RATING SCALE (Social Standing)

C. EDUCATION OF PARENTS

9. Degree holders - both parents holding first or post graduate degrees.
7. Diploma holders - parents holders of full G.C.E. or professional diploma.
5. Certificate holders - parents holders of the Senior Cambridge or equivalent certificate.
3. Both parents completed elementary school.
1. Elementary school not completed by both parents.

D. OCCUPATION OF FATHER

9. Professional, Managerial.
7. Job requiring advanced academic and/or technical skill.
5. Job requiring average academic or technical skill.
3. Skilled manual worker.
1. No job.

RATING SCALE
(Social Standing)

E. INCOME OF FAMILY (monthly)

9. \$800 or more from all sources.
7. \$600 - \$700 from all sources.
5. \$400 - \$500 from all sources.
3. \$200 - \$300 from all sources.
1. \$00 - \$100 from all sources.

F. LOCATION OF RESIDENCE

9. House located in the St. Clair, St. Anns area.
7. House located in the Valsyn, St. Augustine area.
5. House located in the St. James, Woodbrook, Belmont,
San Juan, Tunapuna area.
3. House located in the Piccadilly area.
1. House located in the John John area.

RATING SCALE
(Social Standing)

G. TYPE OF HOUSE

9. Modern type house, not more than eight years old, owned.
7. Modern type house, rented.
5. Older type house, more than 15 years old, owned.
3. House rented from the Government.
1. Shack-type house.

H. FURNISHINGS

9. Modern furniture and household appliances in abundance.
7. Modern furniture and household appliances very limited.
5. Aged furniture and household appliances in abundance.
3. Aged furniture and household appliances very limited.
1. Ill kept furniture and only one or two appliances.

APPENDIX C

I.E.E. INTERVIEW SCHEDULE

BACKGROUND

Mother's name: _____

Father's name: _____

Mother's education: _____

Father's education: _____

Source of income: _____

Type of dwelling: _____

Number of children? _____ Boys? _____ Girls? _____

Number of people living in home _____ Adults _____ Children _____

QUESTIONS:

1. How do you feel about the school progress of your child?

What marks do you expect him to receive?

What marks satisfy you?

Expect _____ Satisfy _____

2. How do your other children generally do in school?

3. How much schooling do you wish your child to receive?

4. How much schooling do you expect your child to receive?

5. What is the minimum level of education that you think your child must receive?

6. What kind of work would you like to see your child do when he grows up?

What kind of work would you not like your child to do?

7. How important will education be in achieving the goals you have for your child?

How much importance is education going to have in the life of your child?

Will his future status be radically affected if he does not attain the level of education you wish him to attain?

8. What organizations or clubs, if any, do you belong to?
(P.T.A., Church, Political)

Does your child know what you do in these organizations? Yes

No

9. What are your favourite recreational pastimes? Your husband's?

What recreational activities do you and your family engage in on weekends together?

What places have you visited on weekends during the past six months? _____ Why? _____

Mother _____ Father _____ Family _____ Visits _____ Reasons _____

10. How often do you and your husband discuss your child's progress in School? Very often, Often, Sometimes, Not at all

What generally results from such discussion?

11. Have you had any experience in teaching? What experience?

Yes

No

Has your husband had any experience? Yes No

12. Have you met your child's present teacher? Yes No

If so, when? _____ Why? _____

Does the teacher generally initiate parent-teacher conferences?

Yes

No

If you ask for a meeting, for what purpose?

13. How does he generally do in school?

What marks does he usually receive?

What are his best subjects? His weakest?

Best

Weakest

14. What subjects has he improved in the most in the past year?

The least

Most

15. How often does the school give out report cards?

Do both parents see them? Yes

No

In what ways do

you use the report cards?

16. About how often do you ask your child how well he is doing in school?

What in particular do you ask him?

17. Do you know what text books he uses in different subjects in school?

Yes, all

Yes, some

No

18. Do you know your child's best friends in the neighbourhood and at

school?

Yes

No

Do you approve of them?

Yes

No

How would you rate these children in their studies?

Do you help your child in choosing his friends? Yes

No

If so, how?

19. Do you help your child read biographies of great people? Yes No

Name

Has he read any biographies in the past two months: Yes No

Name

20. Do you discuss his school marks with him? Yes No

What particular things do you discuss with him?

21. Do you have plans for your child to go to High School? Yes No

If so, what have you done to prepare financially for this?

In what other ways, if any, do you prepare him for the attainment of educational goals? (e.g. telling him about colleges, talking to him about what people learn in college, etc.)

22. Have you had to sacrifice any of your major needs or desires such as buying a new car, giving up a job, etc. for the present and/or future education of your child?

Yes No If so, what did you give up?

What were the immediate consequences?

23. Where have you, as a family, travelled during the past two years?
Why were these places chosen?
What specific activities took up most of your time at these places?

Places _____ Reasons _____ Activities _____

24. When does your child usually eat dinner on weekdays?

Who eats with him?

Who does most of the talking at the dinner table?

About what?

25. At what other times are you together as a family on weekdays?

What are some of the things you do together at these times?

26. What are some of the activities your husband engages in with the child on weekdays? On Weekends?

On Weekdays: _____

On Weekends: _____

27. Are there any adults beside yourself and your husband that your child is particularly friendly with? Yes No

If so, what does he seem to like about them?

What do you see as these person's special qualities?

How often does your child see them?

What does he do when he is with them?

28. Did you have a job outside the home when your child was younger?

Yes

No

If so, who took care of the child?

29. How would you describe your child's language usages? Good

N.G.

Bad

Do you help him to increase his vocabulary? Yes No

If so, how?

How have you helped him to acquire appropriate use of words and sentences?

Are you still helping him in these respects? Yes No

If so, how?

30. Does your child have a library card? Yes No

If so, how long has he had it?

How did he come to get this card? (Note parent initiation)

Do you remember the first few times he went to the library? Yes No

Did anyone accompany him? Yes No Who?

What kind of books have you encouraged him to read?

Where else does he obtain reading material?

31. Do you have a dictionary in your home? Yes No

If so, what kind?

Does your child have a dictionary of his own? Yes No

If so, what kind?

Where are they kept?

How often does your child use the dictionary?

How often do you?

At whose initiation does the child normally use the dictionary?

What other ways does your child have of learning new words?

School? Relatives? etc.

Home dictionary: Yes No Child's dictionary: Yes No

Name: _____ Name: _____

Use: _____ Use: _____

32. Did you read books to your child when he was younger? Yes No

If so, how old was your child when you started? How

regularly do you read to him? Do you still read to

him? Does he read to you? Yes No

How often? Very Often Often Sometimes Not at all

33. How often do you correct him in his speech, e.g. use of "ain't,"

etc.? Very often _____ Often _____ Sometimes _____ Not at all _____

How particular are you about your child's speech?

Are there particular speech habits of his that you have worked on

to improve? Yes No Are you still working on them?

Yes No If so, give examples _____

34. Does your child receive homework? Yes No

Do you help him with these assignments? Yes No

How much time do you find to work with him on these assignments
per week? hours _____

How much time do you and your husband spend providing direct help
to your child in his school learning on weekdays? hours _____

Did you help him in school learning in primary grades? Yes No

If so, how much? Very much _____ Not much _____ Not at all _____

Did you teach him to read or count or print his name before he went
to school? Yes No If so how much:

Very much _____ Not much _____ Not at all _____

At Present _____ Primary Grades _____ Pre-school Period _____

35. Do you have any workbooks or other kinds of learning materials
which you use to help your child in his learning? Yes No

What other steps, if any, do you take to ensure that your child
keeps up in his school work?

36. Is there any regular amount of time you have your child study
each day? Yes No

How closely is the pattern followed? Very closely _____ Closely _____
Not closely _____

37. Does your child take any private instruction - music, dancing,
academic subjects? Yes No

If so, what lessons does he take?

How long has he taken them? months _____

How did he come to begin taking these lessons?

38. Does your child have a desk of his own at home? Yes No

If not, where does he study?

What kinds of supplies are available for him to work with? (Observe)

Paste _____ Paper _____ Paints _____ Ruler _____ Crayons _____ Others _____

39. Do you have an encyclopedia in your home? Yes _____ No _____

If so, what kind?

When did you get it? Why?

How often is it used? By yourself? _____ By the child? _____

40. What sources of reading material does your child have available to help him find answer to questions? Friends? _____ Library? _____

41. What newspapers and/or magazines do you subscribe to?

Do you encourage your child to read them? If so, how?

Do you discuss the articles or stories in them in his presence?

(Give examples) _____

Does your child ever participate in these discussions?

Does he just listen?

42. Do you usually plan your weekends and vacations ahead of time?

Yes _____ No _____ How often? _____

Who makes the plans?

43. What hobbies, if any, does your child have?

How long has he been interested in them?

How did these interests begin?

44. What kinds of toys, games, books, booklets, etc. have you obtained for your child in the past two years? (Include birthdays, holidays)

Give examples. _____

Pre-school period. List. _____

45. What appliances do you permit him to operate?
How long have you allowed this?
46. Do you set your child problems related to school subjects that he is required to answer or solve on his own?
Give examples.
47. What are his favorite Radio programmes?
Do you approve of them?
If not what do you do about them?
48. About how many hours a week does he usually watch TV?
What are his favourite programmes?
Do you approve of them?
If not, what do you do about them?
49. What are your favourite Radio programmes?
Did you recommend?
If so, which ones?
Did you discuss?
50. Does he help you in the routine housework? Yes No
If so, what responsibilities does he have?
How punctually does he carry them out?
51. Is the housework distributed among the members of the family?
If so, who does the planning for such assignments?
How regularly are the assignments followed?
What obstacles if any, come in the way of carrying out such plans?

52. How would you rate your child's habit of completing his work on time, not leaving a problem undone, correcting his mistakes, etc.

How did he acquire these habits? _____

53. Does your child discuss things with you?

Do you encourage him to do so?

Is he afraid to discuss things with you?

Does your child bring his problems to you?

54. Do you take your child with you on trips, visits?

Do you encourage him to talk about what he sees?

55. Is the child encouraged to do things with you?

play games?

What things?

56. In what way do you punish the child?

Do you reason with him?

Beat him Yes _____ No _____ Severely? Yes _____ No _____

- 57, Does your child enjoy being at home? Yes No

Does he stay home much? Yes No

Do you have to put pressure on him to stay at home?

Why do you think he likes to stay at home?

APPENDIX D

RATING SCALES

There are seventeen rating scales in all, as given in this appendix. Each rating scale is preceded by the name of the environmental process characteristic, the criteria for its measurement, and the serial numbers of the questions in the interview schedule that are based on the characteristic. The interview schedule given in Appendix C may be consulted for the questions.

1a PARENTAL ASPIRATIONS FOR THE EDUCATION OF THE CHILD

Criteria: * Nature of the educational and vocational goals
 * Level of expectation of the educational accomplishments

Questions: 1, 2, 3, 4, 5, 6, 7.

Rating Scale:

- | | |
|---|---|
| 9 | Beyond four years of college. Occupational expectation requiring very high education. Expectation of very high marks, A-plusses, in school. |
| 8 | |
| 7 | Four years of college. Occupational expectation requiring high education. Expectation of A's with some B's. |
| 6 | |
| 5 | At least through high school. Some college education desired. Moderately high occupational aspiration. Expectation of B's with some A's and some C's. |
| 4 | |
| 3 | Only up to high school. Very moderate and uncertain occupational expectation. Expected grades C's with some B's. |
| 2 | |
| 1 | Absence of any long term educational and vocational goals. Only narrow and immediate goals. No expectations about grades, or expectation below C's. |

1b. PARENTS' INTEREST IN ACADEMIC ACHIEVEMENT

Criteria: * Extent of participation in the educational activities
(e.g. reading, PTA)

* Keenness for the educational progress of the child

Questions: 8, 9, 10, 11, 12

Rating Scale:

- | | |
|---|--|
| 9 | Both parents active in educational organizations and activities. Very particular about the educational progress of the child. |
| 8 | |
| 7 | Both or any one of the parents active in educational organizations and activities. Particular about the educational progress of the child. |
| 6 | |
| 5 | Only one of the parents occasionally active in educational organizations and activities. Fairly particular about the educational progress of the child. |
| 4 | |
| 3 | Only one of the parents occasionally active in educational organizations and activities. Not quite particular about the educational progress of the child. |
| 2 | |
| 1 | None of the parents active in any educational organization or activity. Not at all particular about the educational progress of the child. |

1c. KNOWLEDGE OF THE EDUCATIONAL PROGRESS OF THE CHILD

- Criteria:
- * Extent of knowledge of the child's educational progress
 - * Extent of knowledge of the textbooks used by the child and his courses of study.

Questions: 13, 14, 15, 16, 17.

Rating Scale:

- | | |
|---|--|
| 9 | Detailed and up-to-date knowledge about the daily progress of the child in the school. Knowledge about the specific topics being studied or recently completed by the child in different subjects. Good acquaintance with all the textbooks used by the child. |
| 8 | |
| 7 | Detailed knowledge about the daily progress of the child in the school. Knowledge about the general topics covered or being covered. Acquaintance with some of the textbooks. |
| 6 | |
| 5 | General idea about the child's progress in terms of subject-wise grades. Knowledge of the general topics covered in some of the subjects. Acquaintance with one or two textbooks. |
| 4 | |
| 3 | Some gross idea about the child's school progress in terms of general grades. Knowledge of the subjects studied but not the topics. No acquaintance with textbooks. |
| 2 | |
| 1 | No knowledge of the child's school progress. No knowledge of the textbooks or topics of study. |

1d. PREPARATION AND PLANNING FOR THE ATTAINMENT OF
EDUCATIONAL GOALS

Criteria: * Financial preparation

 * Academic and mental preparation (e.g. emphasizing
 good grades as preparation for higher learning,
 selecting bright children as friends)

Questions: 13, 18, 19, 20, 21, 22

Rating Scale:

- | | |
|---|--|
| 9 | Sound financial preparation. Also academic and mental preparation for higher learning. |
| 8 | |
| 7 | A good financial preparation, or achievement of best grades in the hope of getting good scholarships for higher learning. Also fairly good academic and mental preparation for higher learning. |
| 6 | |
| 5 | Moderate financial preparation, or a desire to do it but not yet done. Some efforts toward academic and mental preparation for higher learning. |
| 4 | |
| 3 | Only incidental preparation. No definite plans made yet. Moderately high educational goals. However, the parents are aware of the need for doing financial and other preparation to reach the goals. |
| 2 | |
| 1 | No financial or other preparation. Absence of any higher educational goals. |

2a QUALITY OF THE LANGUAGE USAGE OF THE PARENTS

- Criteria:
- * Fluency of expression
 - * Pronunciation
 - * Vocabulary
 - * Organization of thoughts

Evidences: From the conversation with the mother during the interview.

Rating Scale:

- (i) To rate each of the four criteria individually on the following scale and (ii) to take their average as the overall rating for this characteristic.

- | | |
|---|------------------------|
| 9 | Excellent |
| 8 | Very good |
| 7 | Good |
| 6 | A little above average |
| 5 | Average |
| 4 | A little below average |
| 3 | Quite below average |
| 2 | Poor |
| 1 | Very poor |

2b. OPPORTUNITIES FOR THE ENLARGEMENT AND USE OF VOCABULARY
AND SENTENCE PATTERNS

Criteria: * Variety of opportunities (e.g. books, TV, travel,
picnics, verbal interaction in home situations)
* Frequency of opportunities

Questions: 9, 23, 24, 25, 26, 27, 28, 29

Rating Scale:

- | | |
|---|--|
| 9 | A great variety of situations available frequently and consistently. |
| 8 | |
| 7 | A good variety of situations available quite frequently. |
| 6 | |
| 5 | A moderate variety of situations available fairly frequently. |
| 4 | |
| 3 | Only a few situations available infrequently. |
| 2 | |
| 1 | Very limited situations available. |

2c. KEENNESS OF THE PARENTS FOR CORRECT AND EFFECTIVE
LANGUAGE USAGE

Criteria: * Regularity in reading to the child during pre-
school period

* Variety of efforts for increasing vocabulary, and
correcting language usage, if needed.

Questions: 29, 30, 31, 32, 33

Rating Scale:

- | | |
|---|---|
| 9 | Read to the child very regularly, almost everyday, from early childhood until he began reading himself. Some special reading to him still continues. The child is encouraged to read some special material to the parents and others. A great variety of efforts in increasing vocabulary and improving language usage. |
| 8 | |
| 7 | Read to the child quite regularly, almost everyday, for about three years or more before he began to read himself. Some occasional reading to him still continues. A good variety of efforts in improving his vocabulary and language usage. |
| 6 | |
| 5 | Read to the child fairly regularly for two or three times a week for about two years or so. Some effort to improve vocabulary and language usage still continues. |
| 4 | |
| 3 | Read to the child during the pre-school period occasionally and without any regularity. Incidental efforts to improve vocabulary and language usage. |
| 2 | |
| 1 | Not read to the child with any regularity at any time. Hardly any efforts to improve vocabulary and language usage. |

3a. AVAILABILITY OF GUIDANCE ON MATTERS RELATING TO
SCHOOL WORK

Criteria: * Extent of general supervision regarding school work
 * Readiness in guidance when asked for
 * Suggestions regarding school work

Questions: 16, 17, 20, 34, 35, 36, 46

Rating Scale:

- | | |
|---|---|
| 9 | Very regular general supervision regarding school work. Guidance made readily available when asked for. Suggestions given to the child regularly regarding the betterment of school work at the parents' initiative. Both parents provide the guidance and suggestions. |
| 8 | |
| 7 | Regular general supervision regarding school work. Guidance available most of the times when asked for. Suggestions given to the child sometimes, regarding the betterment of school work, at the parents' initiative. Both parents provide the guidance and suggestions. |
| 6 | |
| 5 | Fairly regular supervision regarding school work. Guidance sometimes available. Suggestions given to the child regarding the betterment of the work, only occasionally. Only one of the parents provides guidance and suggestions, |
| 4 | |
| 3 | Occasional supervision regarding school work. Guidance only occasionally available. Suggestions given to the child regarding the betterment of the work very occasionally. |
| 2 | |
| 1 | No supervision regarding school work. No guidance or suggestions available for the improvement of school work. |

3b. AVAILABILITY AND USE OF MATERIALS AND FACILITIES
RELATED TO SCHOOL LEARNING

Criteria: * Selection of the material (e.g. Dictionary,
Encyclopedia, Workbooks)

* Guidance for the use of the material and
educational facilities

Questions: 31, 37, 38, 39, 40, 41

Rating Scale:

- | | |
|---|---|
| 9 | Selection of the most appropriate materials according to the educational level of the child. Abundant supply of the educational material. Appropriate and timely guidance for the use of the material and facilities. |
| 8 | |
| 7 | Selection of generally appropriate material according to the educational level of the child. Fairly abundant supply of the educational material. Appropriate and timely guidance for the use of the materials and facilities. |
| 6 | |
| 5 | Availability of some educational material. Specific selection according to the child's level only in some cases. Some general guidance for the use of the materials and facilities. |
| 4 | |
| 3 | Very moderate supply of educational material, No specific selection according to the child's level. Only occasional guidance for the use of the material and facilities. |
| 2 | |
| 1 | No availability of educational material in the home, No use of facilities available in the community, such as library. |

4a. THE EXTENT AND CONTENT OF INDOOR ACTIVITIES OF THE FAMILY

Criteria: * Variety (Discussion, Undertaking a project, etc.)

* Frequency

* Educational value

Questions: 9, 25, 26, 41

Rating Scale:

- | | |
|---|--|
| 9 | A variety of activities in the home, having very high educational value are frequently undertaken by the family. Both parents participate. |
| 8 | |
| 7 | A variety of activities in the home, having high educational value are often undertaken by the family. One or both parents participate. |
| 6 | |
| 5 | A moderate variety of activities in the home, having general educational value are sometimes undertaken by the family. One or both parents participate. |
| 4 | |
| 3 | Only a very few number of family activities in the home have direct educational value. Often only one parent participates. |
| 2 | |
| 1 | No family activities in the home. Or, the activities have hardly any direct educational value. Both parents are generally not available in any educational activities. |

4b. THE EXTENT AND CONTENT OF OUTDOOR ACTIVITIES DURING
WEEK-ENDS AND VACATIONS

Criteria: * Variety (e.g. visits to a museum or a zoo, traveling
to historical places)

* Frequency

* Educational value

Questions: 8, 9, 23, 26, 42

Rating Scale:

- | | |
|---|--|
| 9 | A variety of child-centered activities outside the home having very high educational value, and frequently undertaken by the family. Both parents participate. Initiated and planned by different members of the family, instead of just one person, |
| 8 | |
| 7 | A variety of outside activities having high educational value are often undertaken by the family. One or both parents participate. Generally planned by the parents. |
| 6 | |
| 5 | A moderate variety of outside activities that have high educational value. Such activities are only sometimes undertaken by the family. One or both parents participate. Generally planned by any one of the parents. |
| 4 | |
| 3 | A majority of outside activities have more recreational or other purposes, with incidental educational value. Or, very few outdoor activities. One or both parents participate. Generally planned by any one of the parents. Other follow. |
| 2 | |
| 1 | Practically no outside activities of the family having educational purpose. |

5a. NATURE AND QUALITY OF TOYS, GAMES, AND HOBBIES MADE AVAILABLE TO THE CHILD

Criteria: * Thought-provoking element in the toys, etc.

* Variety

Questions: 43, 44, 45

Rating Scale:

- | | |
|---|---|
| 9 | A large variety of thought provoking and educational toys, games, etc. provided to the child since early childhood. Great encouragement for the development of educationally oriented hobbies. |
| 8 | |
| 7 | A fairly good variety of thought-provoking and educational toys, games etc, provided for the child since early childhood. Some encouragement for the development of educationally oriented hobbies, |
| 6 | |
| 5 | Some thought-provoking and educational toys, games, etc. available. No educationally oriented hobbies. |
| 4 | |
| 3 | Only a few thought-provoking and educational toys, games, etc. available. No educationally oriented hobbies. |
| 2 | |
| 1 | Hardly any thought-provoking and educational toys, games, etc. available. No educationally oriented hobbies. |

5b. OPPORTUNITIES FOR THINKING AND IMAGINATION IN DAILY ACTIVITIES

- Criteria:
- * Variety (e.g. use of power appliances, thought-provoking discussions, etc.)
 - * Level of complexity
 - * Extent of encouragement for independent thinking

Questions: 41, 45, 46

Rating Scale:

- | | |
|---|--|
| 9 | Opportunities to work with a variety of complex appliances. Opportunities to listen to and participate in thought-provoking discussions. Great encouragement for independent thinking. |
| 8 | |
| 7 | Opportunities to work with some variety of complex appliances. Some opportunities to listen to and participate in thought provoking discussions; Some encouragement for independent thinking. |
| 6 | |
| 5 | Opportunities to work with a few moderately complex appliances. Some opportunities to listen to thought-provoking discussions. Some encouragement for independent thinking. |
| 4 | |
| 3 | Opportunities to work with one or two very moderately complex appliances. Opportunities to listen to thought-provoking discussions only occasionally. Hardly any encouragement for independent thinking. |
| 2 | |
| 1 | Practically no opportunities to work with any complex appliances. No opportunities to listen to any thought-provoking discussions. No encouragement for independent thinking. |

5c. USE OF TV AND OTHER SUCH MEDIA

Criteria: * Purpose of the use

* Extent of the use

Questions: 47, 48, 49

Rating Scale:

- | | |
|---|--|
| 9 | Regular use for specifically educational purpose. Recreational value subsidiary. Frequence follow-up discussions. |
| 8 | |
| 7 | Regular use for general educational and recreational purposes. Sometimes followup discussions, |
| 6 | |
| 5 | Fairly regular use. Recreational purpose often more predominant than educational purpose, Occasionally followup discussions, |
| 4 | |
| 3 | Not much use of TV and other media. Mostly recreational purpose when used, Hardly any followup discussions. |
| 2 | |
| 1 | No use of any of these media. |

5d. USE OF BOOKS, PERIODICAL LITERATURE, LIBRARY AND SUCH OTHER FACILITIES

- Criteria:
- * Variety of material used by the family members (e.g. books, magazines, newspapers)
 - * Encouragement to the child for the use of such material (e.g. helping him to be a member of the library, suggesting him to trade reading material with friends)

Questions: 9, 30, 32, 41

Rating Scale:

- | | |
|---|---|
| 9 | Extensive reading of a variety of material by the family members. Great encouragement to the child for the same from his early age -- even before he learned to read. |
| 8 | |
| 7 | Fairly extensive reading of a good variety of material by the family members. Encouragement to the child for the same ever since he learned to read. |
| 6 | |
| 5 | Moderate reading of some variety of material by the family members. Some encouragement to the child for the use of reading facilities -- only lately. |
| 4 | |
| 3 | Some reading infrequently done by the members of the family. Only occasional encouragement to the child for the use of reading facilities. |
| 2 | |
| 1 | Hardly any reading done by the members of the family. No encouragement to the child also. |

6a. STABILITY AND RATIONALITY OF THE HOUSEHOLD

Criteria: * Smoothness in the routine activities in the home
* Orderliness (but no rigidity) of household affairs

Questions: 36, 50, 51, 52

Rating Scale:

- | | |
|---|---|
| 9 | Smooth running household. Well planned home management.
Distribution of work among the family members.
Punctuality and discipline in following the plans. |
| 8 | |
| 7 | Major duties distributed among the family members.
Planning followed quite consistently. |
| 6 | |
| 5 | Moderate smoothness, planning. Planning followed
with only moderate regularity. |
| 4 | |
| 3 | Some efforts made for planning and distribution of
work which was not followed systematically. |
| 2 | |
| 1 | No planning of household work. No smoothness in
routine. |

6b. ACCEPTANCE OF THE CHILD BY THE PARENTS

Criteria: * Parental attitude to the child
* Encouragement given to household interaction

Questions: 53, 54, 55, 56, 57

Rating Scale:

- | | |
|---|---|
| 9 | Positive attitude to the child. Warmth in family relationships. |
| 8 | |
| 7 | Much encouragement given by parents for household interaction. |
| 6 | |
| 5 | Lukewarm family relationships. |
| 4 | |
| 3 | Little encouragement given for interaction. |
| 2 | |
| 1 | Negative attitude to the child. Hostility in household. |

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